InfraPower®

Inspired by Your Data Center

User Manual IPM-04 PDU management software

W series PDU : Single Phase 208V
Three Phase 208V

Designed and manufactured by Austin Hughes

FC CE RoHS REACH

Legal Information

First English printing, October 2002

Information in this document has been carefully checked for accuracy; however, no guarantee is given to the correctness of the contents. The information in this document is subject to change without notice. We are not liable for any injury or loss that results from the use of this equipment.

Safety Instructions

Please read all of these instructions carefully before you use the device. Save this manual for future reference.

- Unplug equipment before cleaning. Don't use liquid or spray detergent; use a moist cloth.
- Keep equipment away from excessive humidity and heat. Preferably, keep it in an air-conditioned environment with temperatures not exceeding 40º Celsius (104º Fahrenheit).
- When installing, place the equipment on a sturdy, level surface to prevent it from accidentally falling and causing dam age to other equipment or injury to persons nearby.
- When the equipment is in an open position, do not cover, block or in any way obstruct the gap between it and the power supply. Proper air convection is necessary to keep it from overheating.
- Arrange the equipment's power cord in such a way that others won't trip or fall over it.
- If you are using a power cord that didn't ship with the equipment, ensure that it is rated for the voltage and current labelled on the equipment's electrical ratings label. The voltage rating on the cord should be higher than the one listed on the equipment's ratings label.
- Observe all precautions and warnings attached to the equipment.
- If you don't intend on using the equipment for a long time, disconnect it from the power outlet to prevent being dam aged by transient over-voltage.
- Keep all liquids away from the equipment to minimize the risk of accidental spillage. Liquid spilled on to the power supply or on other hardware may cause damage, fire or electrical shock.
- Only qualified service personnel should open the chassis. Opening it yourself could damage the equipment and invali date its warranty.
- If any part of the equipment becomes damaged or stops functioning, have it checked by qualified service personnel.

What the warranty does not cover

- Any product, on which the serial number has been defaced, modified or removed.
- Damage, deterioration or malfunction resulting from:
  - ☐ Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
  - ☐ Repair or attempted repair by anyone not authorized by us.
  - ☐ Any damage of the product due to shipment.
  - ☐ Removal or installation of the product.
  - ☐ Causes external to the product, such as electric power fluctuation or failure.
  - ☐ Use of supplies or parts not meeting our specifications.
  - ☐ Normal wear and tear.
  - ☐ Any other causes which does not relate to a product defect.
- Removal, installation, and set-up service charges.

Regulatory Notices Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential instal-lation.

Any changes or modifications made to this equipment may void the user's authority to operate this equipment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-position or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Unpacking

The equipment comes with the standard parts shown on the package contents. Check and make sure they are included and in good condition. If anything is missing, or damage, contact the supplier immediately.

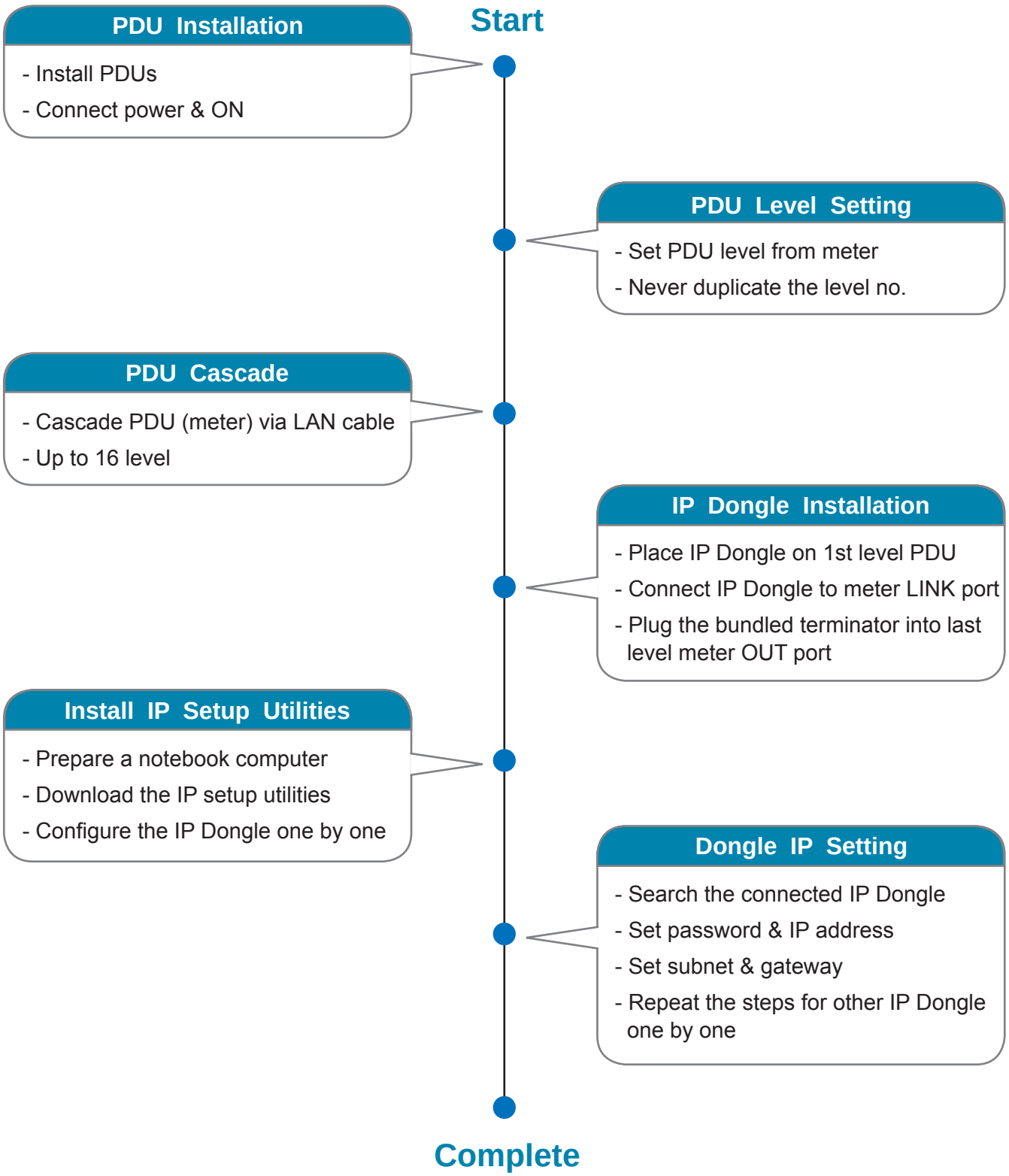
All electrical power and power control wiring must be installed by a qualified electrician and comply with local and national regulations.

Don’t exceed the outlet, branch or phase limitations

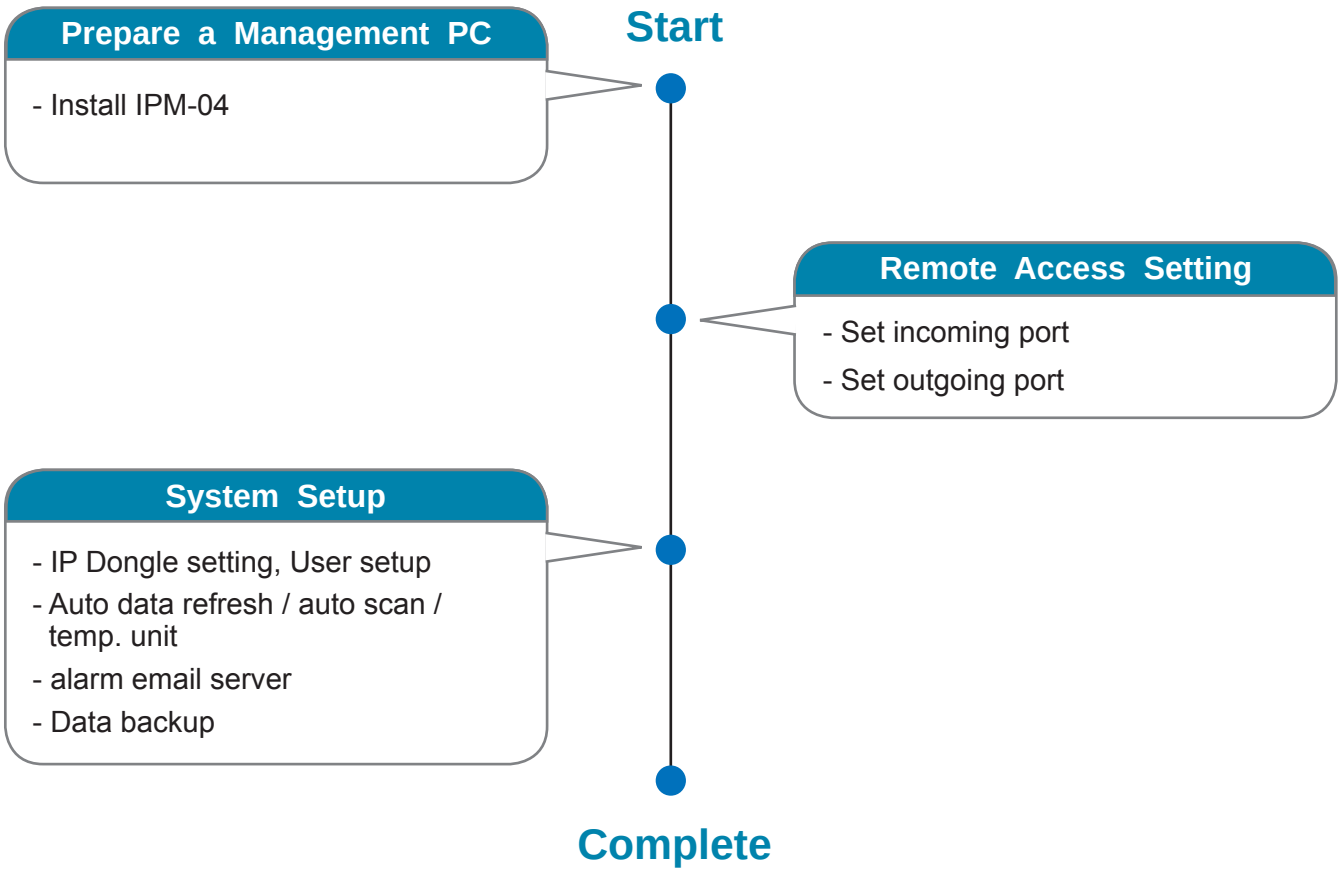
Power ON

- Connect the PDU into an appropriately rated receptacle
- When the PDU is power on, the LED display will light up. That means all outlets are activated
- Keep the equipments in the power off position until it is plugged into the PDU

Tips for hardware Installation


Start
PDU Installation
- Install PDUs
- Connect power & ON
PDU Level Setting
- Set PDU level from meter
- Never duplicate the level no.
PDU Cascade
- Cascade PDU (meter) via LAN cable
- Up to 16 level
IP Dongle Installation
- Place IP Dongle on 1st level PDU
- Connect IP Dongle to meter LINK port
- Plug the bundled terminator into last level meter OUT port
Install IP Setup Utilities
- Prepare a notebook computer
- Download the IP setup utilities
- Configure the IP Dongle one by one
Dongle IP Setting
- Search the connected IP Dongle
- Set password & IP address
- Set subnet & gateway
- Repeat the steps for other IP Dongle one by one
Complete

Tips for System Setup



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Part I. “ W “ Meter

< 1.1 > Meter Key Features

Four intelligent PDU series covering single & three phase equipped with W Meter :

Monitored PDU : ① W PDU
② Wi PDU - Outlet Measurement

Switched PDU : ③ WS PDU
④ WSi PDU - Outlet Measurement

InfraPower®	Monitored PDU		Switched PDU	
	W	Wi	WS	WSi
Outlet Amp + kWh Measurement		✔		✔
Outlet Switch ON / OFF			✔	✔
Field Replaceable Meter	✔	✔	✔	✔
2.8” Color LCD (featured w/ Touchscreen)	✔	✔	✔	✔
Circuit / Phase Amp + kWh Measurement	✔	✔	✔	✔
Support Single & Three Phase PDU	✔	✔	✔	✔
Phase Balance % (3 Phase PDU only)	✔	✔	✔	✔
Temp-Humid Sensor port x 2	✔	✔	✔	✔
16 PDU Levels in Single Daisy Chain	✔	✔	✔	✔
One IP Access up to 16 PDU Levels	✔	✔	✔	✔
Tool-less Mounting for Vertical PDU	✔	✔	✔	✔
SNMP Capability via IP Dongle	✔	✔	✔	✔
Free Management Software (via PDU IP Dongle, IPD-04S)	IPM-04	IPM-04	IPM-04	IPM-04

W series PDU is equipped with a highly advanced component - “ W “ Meter .

- Single & Three Phase PDU can be inter-cascaded in a single daisy chain.
- Simply connect 1 x IP Dongle to access up to 16 PDUs to save IP network address.
- SNMP Capability via IP Dongle
- Built-in buzzer will sound when circuit or bank Amp over alarm setting.
- Field replaceable design allows meter replacement without PDU power interruption.

1 **Cascade port**

Up to 16 PDU Level

2 Sensor port x 2

- Temp. Sensor
- Temp. + Humid. Sensor

3 **2.8” color LCD**

Featured w/ Touchscreen

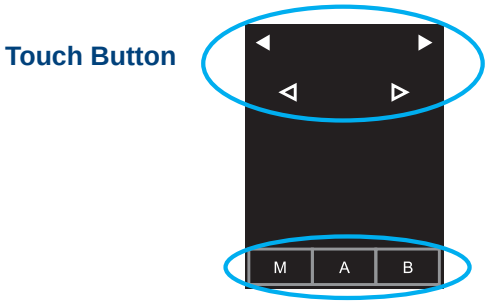
4 Reset button

To re-power the meter if necessary but won’t cause any change on settings and memories.

< 1.2 > Meter Reading & Setting

Reading < Single Phase 208V >

- Amp, Voltage & Power Factor
- kWh Energy Consumption
- Active & Apparent Power
- Temp. & Humidity



Single Circuit

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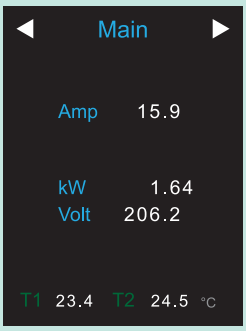

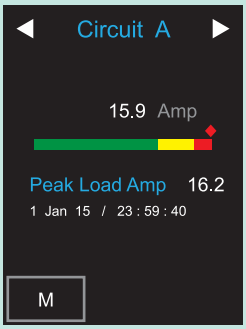

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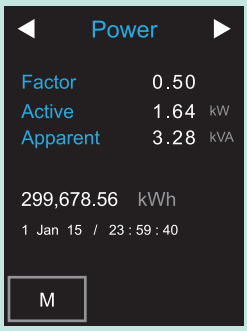

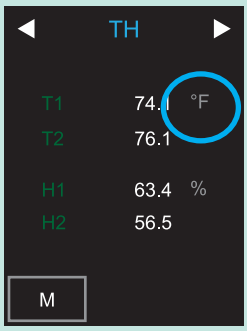

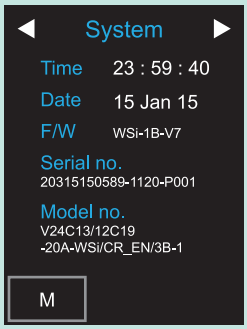

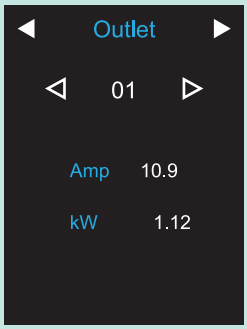

Page no.5
Touch °C / °F to change temp. unit

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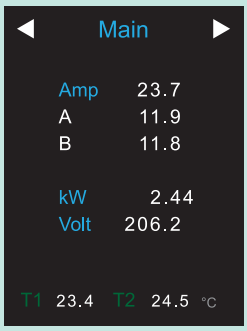
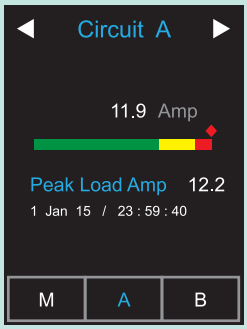
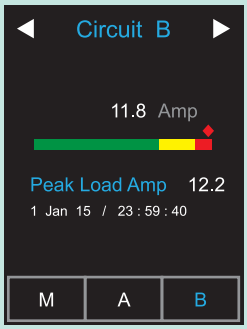
Wi / WSi outlet measurement PDU only

Dual Circuit

1 - 4







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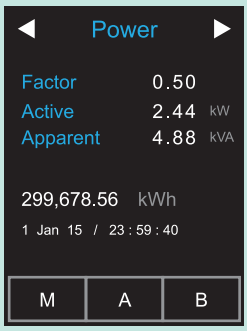
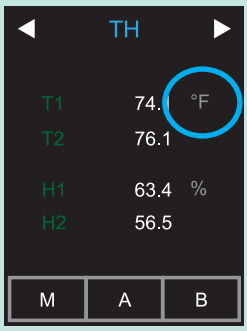
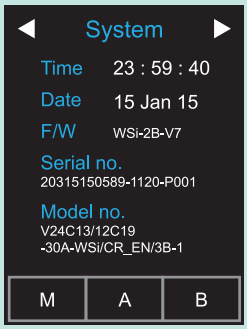
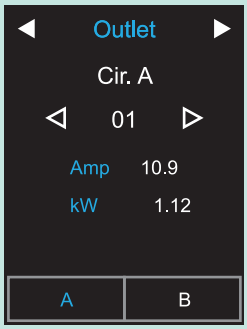






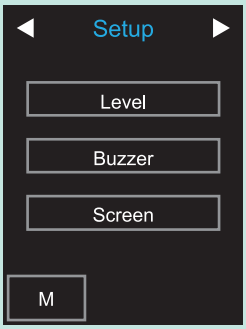


Page no.6
Touch °C / °F to change temp. unit

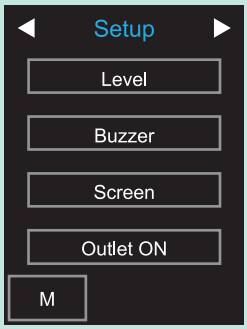
Page no.8
Wi / WSi outlet measurement PDU only

< 1.2 > Meter Reading & Setting

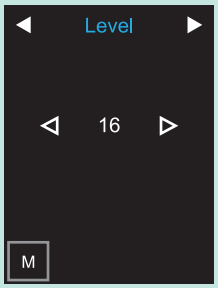
Setting < Single Phase 208V >



Monitored PDU

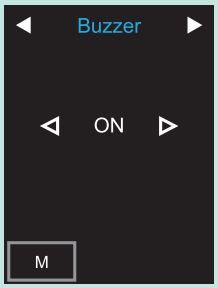


Outlet Switched PDU



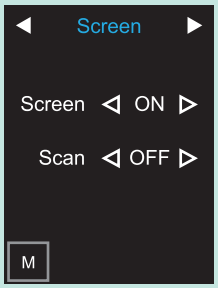
PDU Level Setting

Default no. : 16



Buzzer ON / OFF

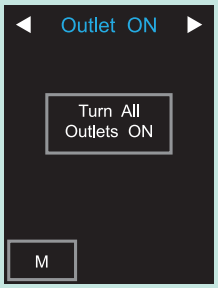
Default : ON



Default : Screen < ON > Scan < OFF >

* **OFF Screen** :
- Screen OFF in 30 seconds
- If want to turn on the screen just touch it
- OFF in 30 seconds if no any further touch

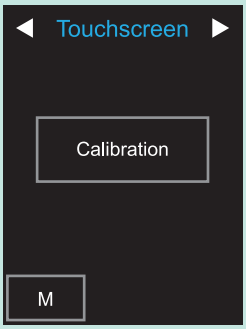
* **ON Scan :**
- Scanning starts in 30 seconds
- Then scan each page per 3 seconds



Outlet ON / OFF

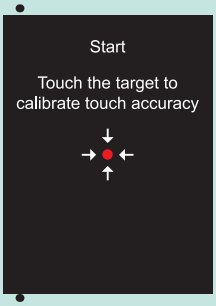
Default : ON

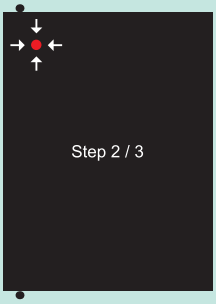
WS / WSi Outlet Switched PDU only

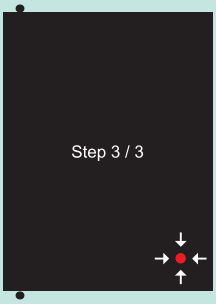


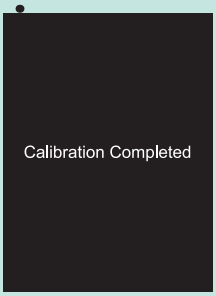
Touchscreen Calibration

If no any calibrate touch in 30 seconds, it will return to Touchscreen page







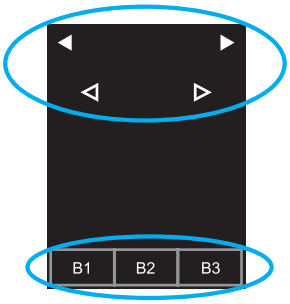


< 1.2 > Meter Reading & Setting

Reading < Three Phase 208V 20A / 30A >

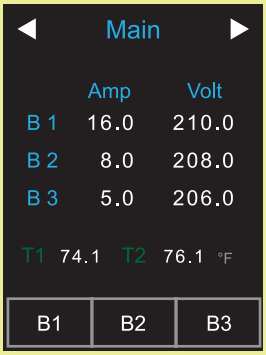
- Amp, Voltage & Power Factor
- kWh Energy Consumption
- Active & Apparent Power
- Phase Balance
- Temp. & Humidity

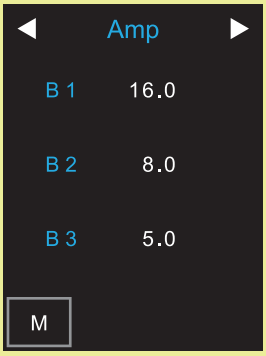
Touch Button



Three Phase 20A / 30A

1 - 3





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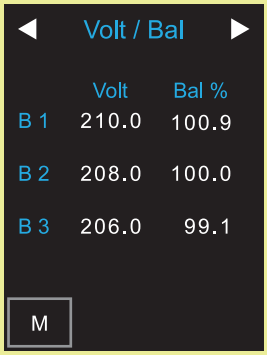

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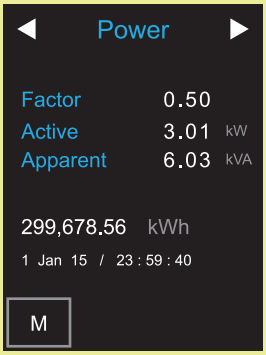
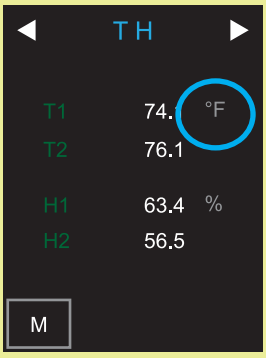
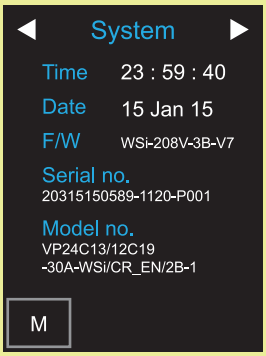
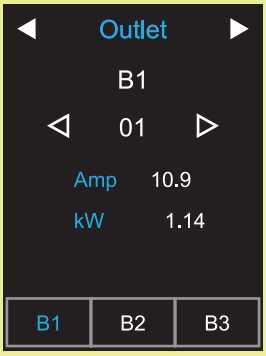


Page no.6
Touch °C / °F to change temp. unit



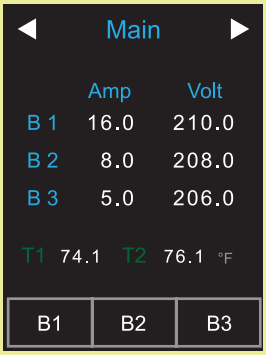


Page no.8
Wi / WSi outlet measurement PDU only

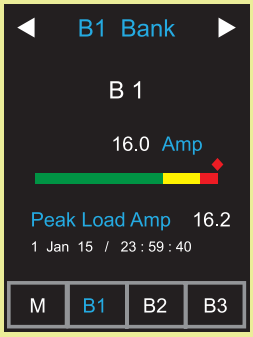


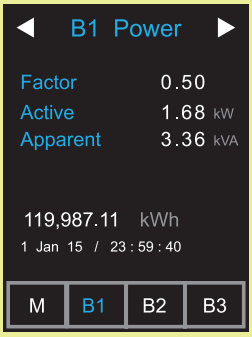
Bank Reading

208V, 20A / 30A, Bank x 3

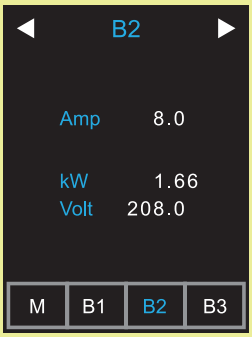


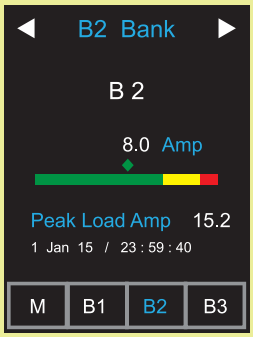
Bank 1

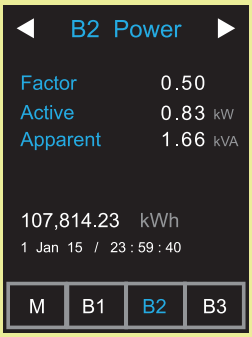




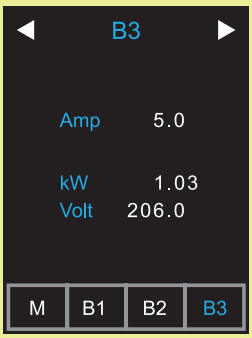
Bank 2

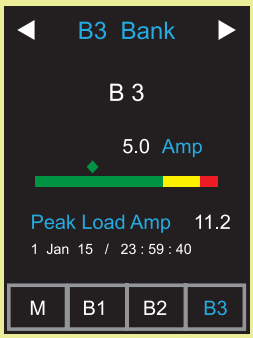


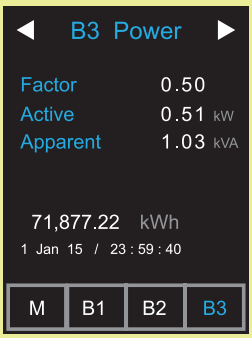




Bank 3





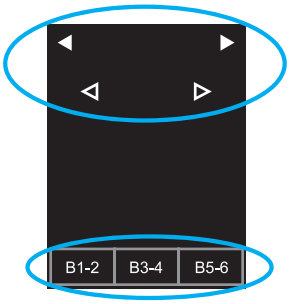


< 1.2 > Meter Reading & Setting

Reading < Three Phase 208V 50A / 60A >

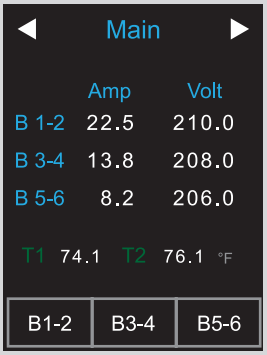
- Amp, Voltage & Power Factor
- kWh Energy Consumption
- Active & Apparent Power
- Phase Balance
- Temp. & Humidity

Touch Button



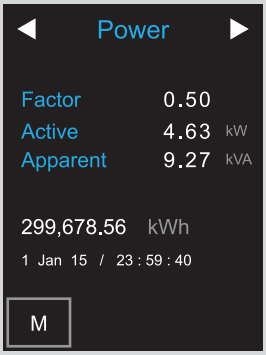
Three Phase 50A / 60A

1 - 3

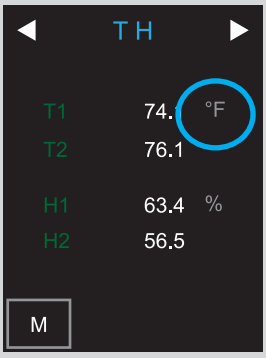


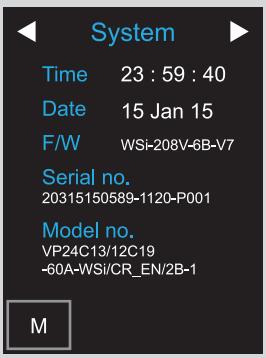
4

5 - 8

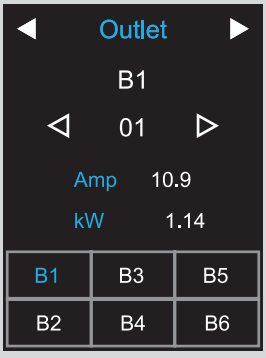


Page no.6
Touch °C / °F to change temp. unit



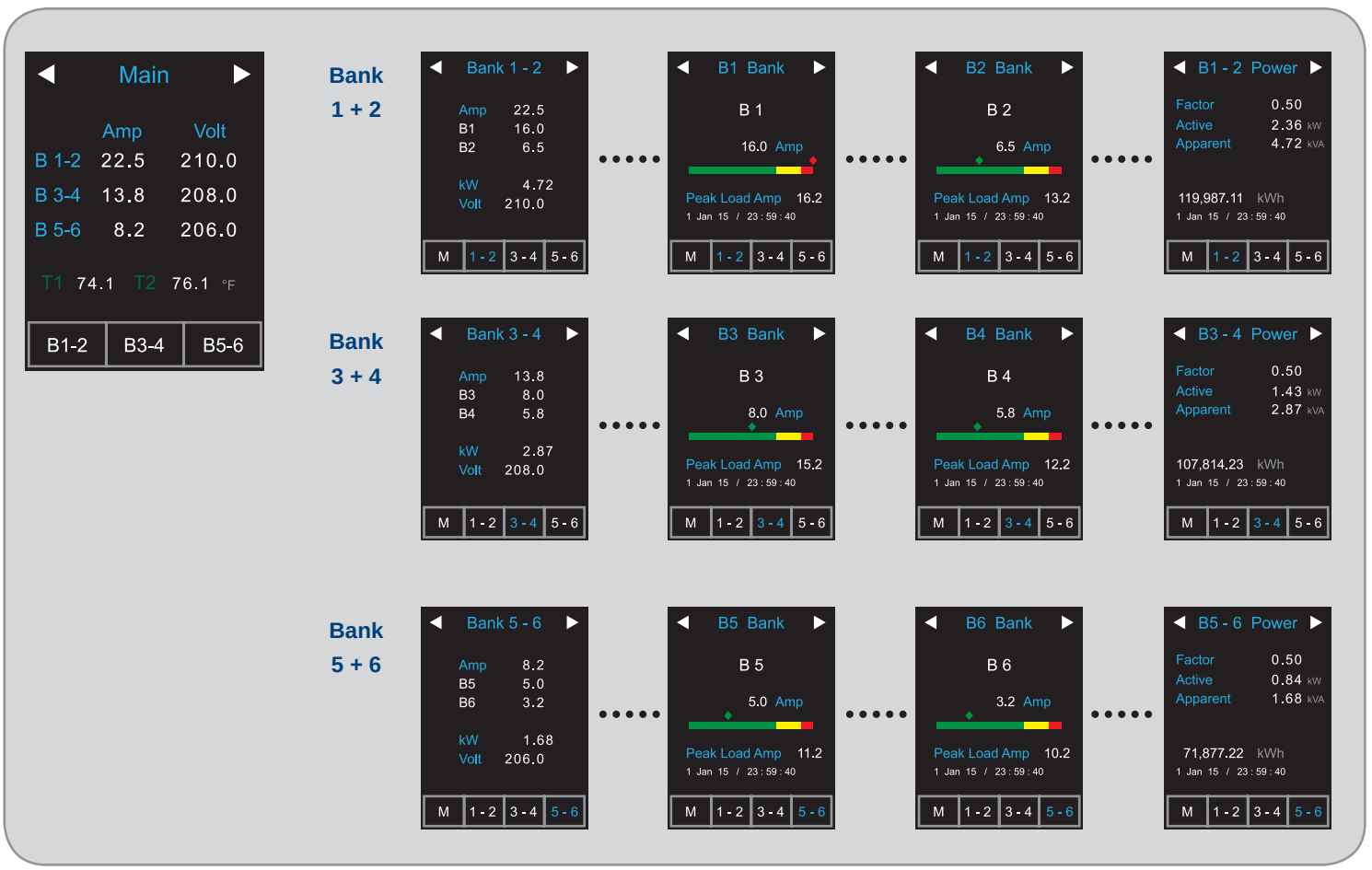


Page no.8
Wi / WSi outlet measurement PDU only



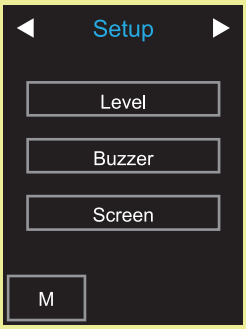
Bank Reading

208V, 50A / 60A, Bank x 6

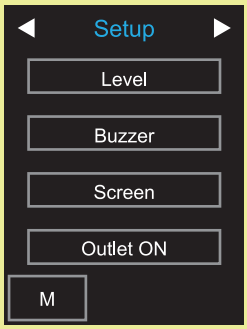


< 1.2 > Meter Reading & Setting

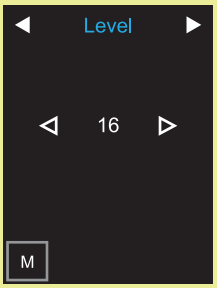
Setting < Three Phase 208V >



Monitored PDU

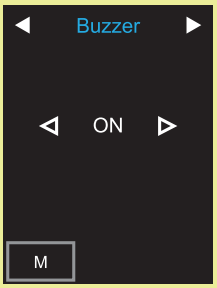


Outlet Switched PDU



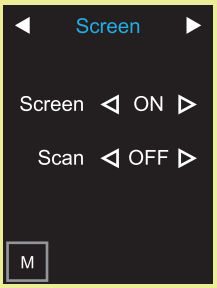
PDU Level Setting

Default no. : 16



Buzzer ON / OFF

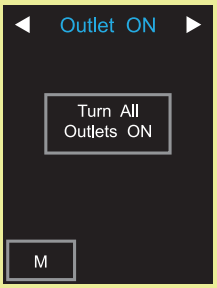
Default : ON



Default : Screen < ON > Scan < OFF >

* **OFF Screen** :
- Screen OFF in 30 seconds
- If want to turn on the screen just touch it
- OFF in 30 seconds if no any further touch

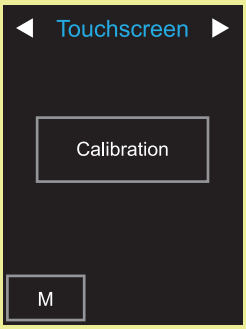
* **ON Scan :**
- Scanning starts in 30 seconds
- Then scan each page per 3 seconds



Outlet ON / OFF

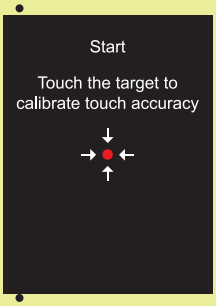
Default : ON

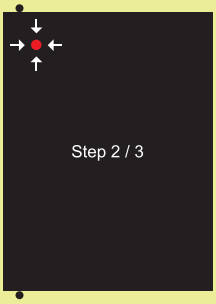
WS / WSi Outlet Switched PDU only

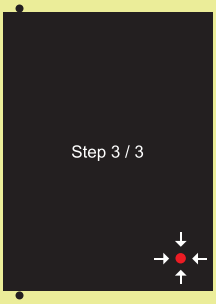


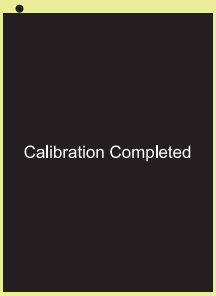
Touchscreen Calibration

If no any calibrate touch in 30 seconds, it will return to Touchscreen page





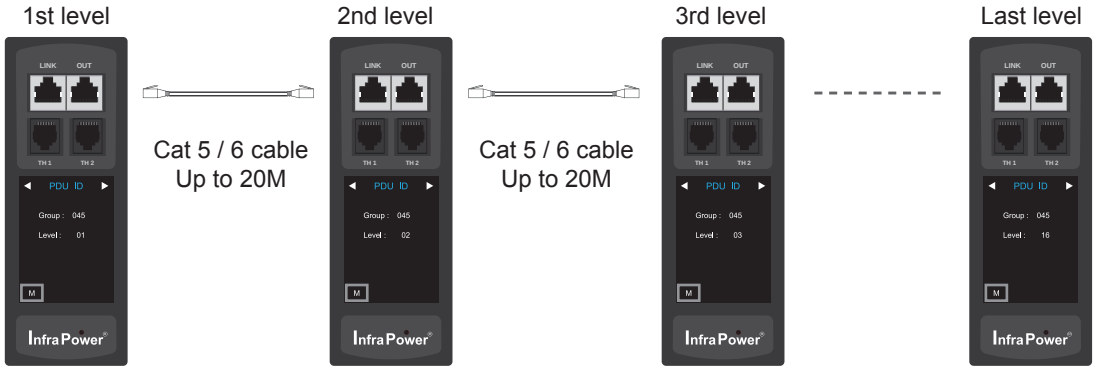




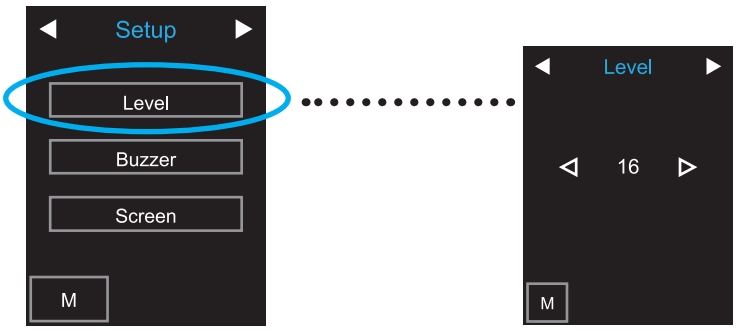
Intentionally Blank

< 1.3 > Meter (PDU) Cascade

- The PDU can be cascaded up to 16 levels
- For IP PDU access simply connect 1 x IP Dongle - IPD-04-S
- 1 x IP Dongle allows access to 16 levels
- Single & 3 Phase PDU can be inter-cascaded in the single daisy chain

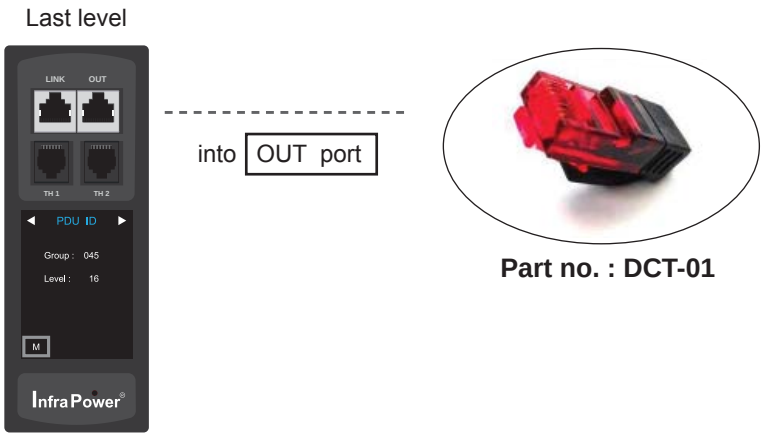


To setup page for **PDU level setting** as below :



PDU Daisy Chain Terminator

To stabilize the data transmission among cascaded PDUs, it is a **MUST** to plug the terminator into the OUT port of **the last PDU meter**.



PDU Daisy Chain Terminator
(Free bundled with each PDU IP Dongle)

Part no. : DCT-01

< 1.4 > IP Dongle Installation

IP Dongle Access to 16 PDU Levels

Patented IP Dongle provides IP remote access to the PDUs by a true network IP address chain. Only 1 x IP Dongle allows access to max. 16 PDUs in a single daisy chain - which is a highly efficient application for saving not only the IP remote accessories cost, but also the true IP addresses required on the PDU management.

Hot-Pluggable design facilitates the IP Dongle installation. Simply integrate the IP Dongle to the 1st PDU, then the entire daisy chain group can be remote over IP.

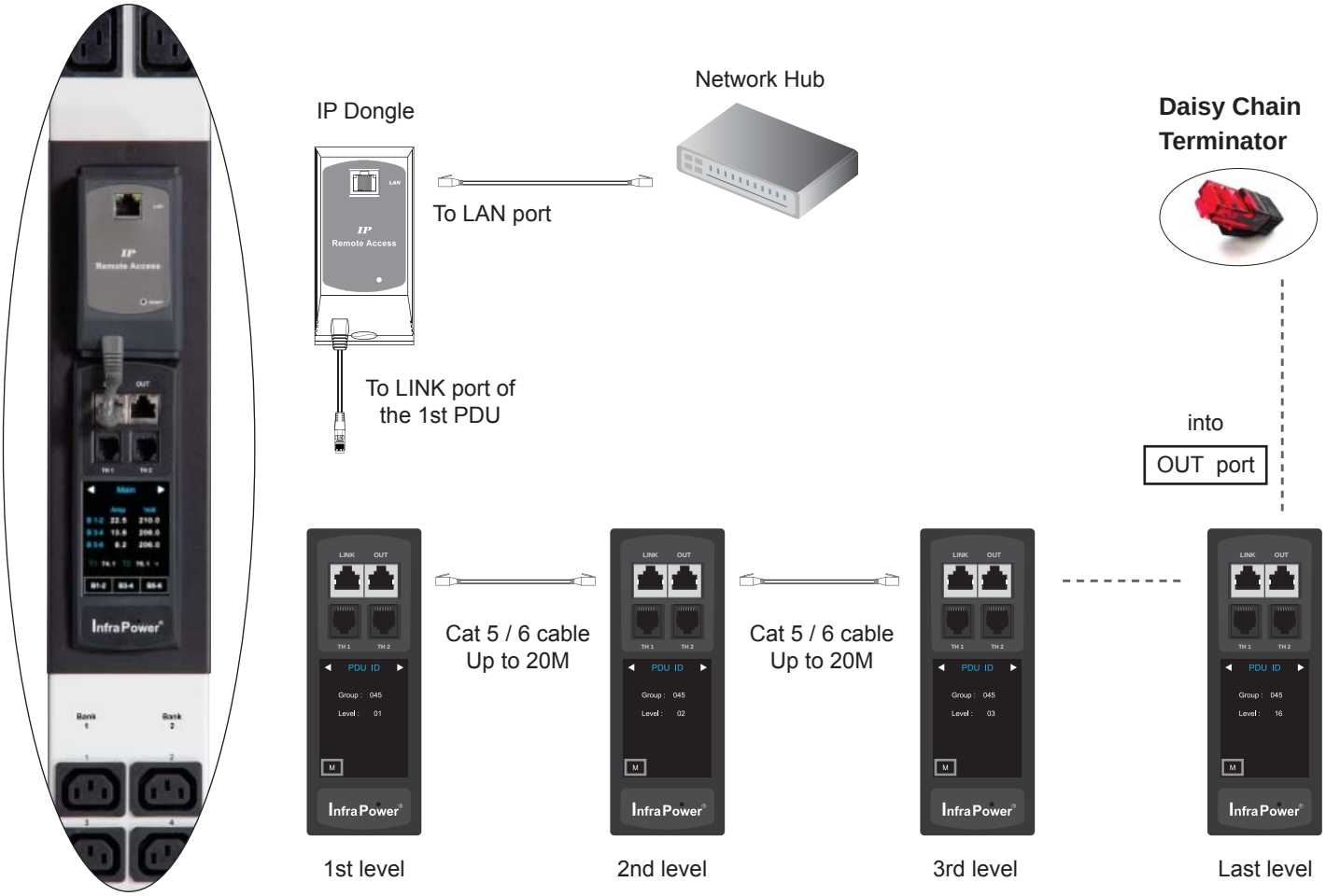
Part no.
IPD-04-S

IP Dongle for vertical PDU

- SNMP function
- Free bundle a Daisy Chain Terminator

Installation steps :

- slide and fix the IP Dongle on the plate over the meter
- plug its RJ-45 connector into the LINK port of the 1st level PDU meter
- plug the bundled daisy chain terminator into the OUT port of the last level PDU meter
- connect IP Dongle to network device via CAT. 5 / 6 cable



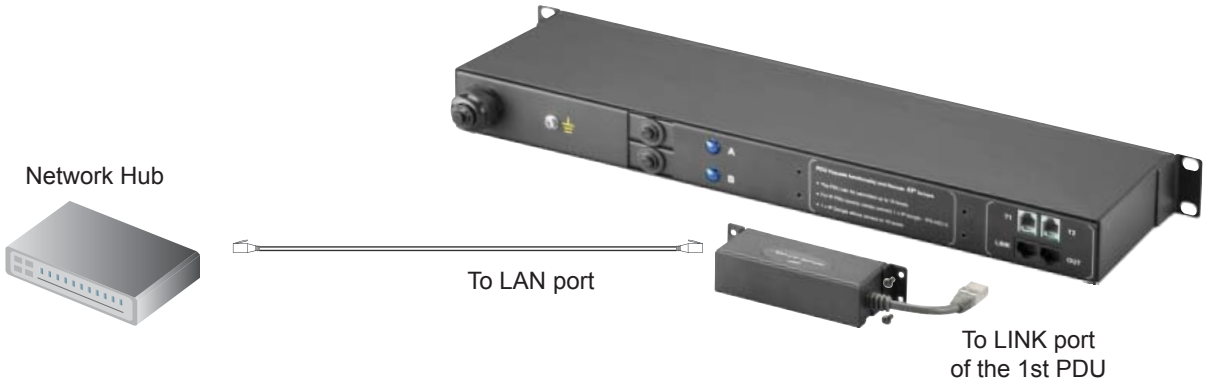
< 1.4 > IP Dongle Installation

IP Dongle for rackmount PDU

- SNMP function
- Free bundle a Daisy Chain Terminator

Installation steps :

- fix the IP Dongle on the rear side of rackmount PDU with 4 screws
- plug its RJ-45 connector into the LINK port of the 1st level PDU meter
- plug the bundled daisy chain terminator into the OUT port of the last level PDU meter
- connect IP Dongle to network device via CAT. 5 / 6 cable



< 1.5 > Meter System Timer

Each PDU comes with a system timer to show the current date & time.
It will be synchronized with the system time of the management PC under circumstances below:

- When the PDU connected to IPM-04 at the first time
- When the PDU is reconnected to IPM-04 after disconnection
- At 00:00:00 (hh:mm:ss) daily

The system timer will be frozen when the PDU is powered OFF.

< 1.6 > Optional Accessory

Temp. / Temp. + Humidity Sensor

W Meter provides 2 sensor ports for Temp. & Humidity monitoring. Once sensors connected, the reading will display in the meter.

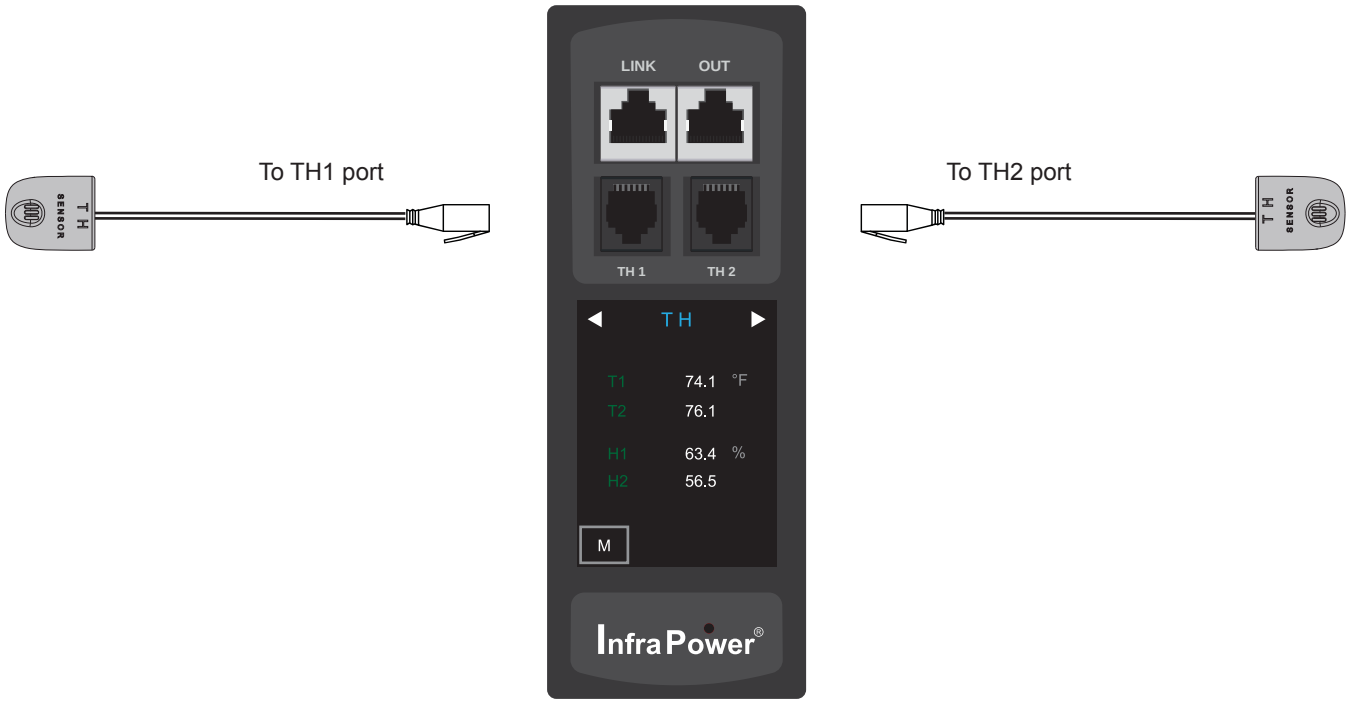
- Plug n Play
- sensor with 2M or 4M cord
- low profile design with magnetic base for easy affixing to the cabinet

Temp. & Humid. Sensor

Part no. :
IG - TH01 - 2M (2M cord)
IG - TH01 - 4M (4M cord)

Temp. Sensor

Part no. :
IG - T01 - 2M (2M cord)
IG - T01 - 4M (4M cord)



< 1.6 > Optional Accessory

Temp. / Temp. + Humidity Sensor

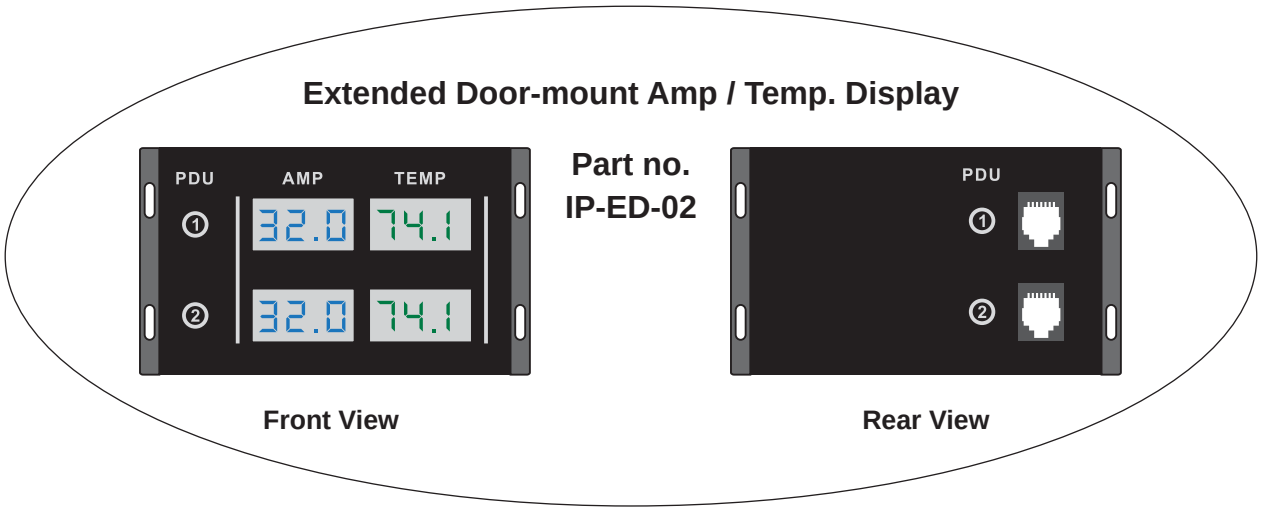
		Temp. & Humid. Sensor	Temp. Sensor
Part no.		**IG - TH01**	**IG - T01**
Temperature Sensitivity	Range	0 to 80°C (32 to 176°F)	
	Accuracy	±1.0°C typical (±2°F)	±1.5°C (±3°F)
	Resolution	0.1°C (0.2°F)	
	Response Time	5 to 30 sec	
Relative Humidity Sensitivity	Range	0 to 100% R.H	/
	Accuracy	0 to 100, ±8.0% R.H 20 to 80, ±4.5% R.H.	/
	Resolution	1% R.H.	/
	Response Time	8 sec	/
Power Requirement	Voltage	12VDC, powered by sensor port	
	Current Consumption	20mA	
	Power consumption	0.24 Watt	
	Power on indicator	Red LED	Green LED
Housing	Chassis & Cover	plastic	
	Color	Dark gray	
	Installation	Magnetic base for unrestricted installation	
Cable	Cable Length	TH sensor w/ 2m cable (standard) TH sensor w/ 4m cable (option)	T sensor w/ 2m cable (standard) T sensor w/ 4m cable (option)
	Cable Specification	4-wired 3.5mm to RJ11	
	Cable Color	Black	Beige
Environmental	Operating	0 to 80°C Degree	
	Storage	-5 to 80°C Degree	
	Humidity	0~100%, non-condensing	
Dimensions	Product	30L x 25Wx 18H mm	
Weight	Net	10g	
Compatibility	InfraPower	Single & 3 Phase W / WS / Wi / WSi series PDU	
	InfraSolution	X-2000 series	
	InfraGuard	Cabinet sensor system	
Safety Regulatory		FCC & CE certified	
Environmental		RoHS2 & REACH compliant	

< 1.6 > Optional Accessory

Extended Door-mount Amp / Temp. Display

External Door Mount PDU Display (IP-ED-02) provides RJ-11 port x 2 for PDU amp. & Temperature monitoring. Once connected, the reading of PDU amp. and the temp. shows in the external door mount display.

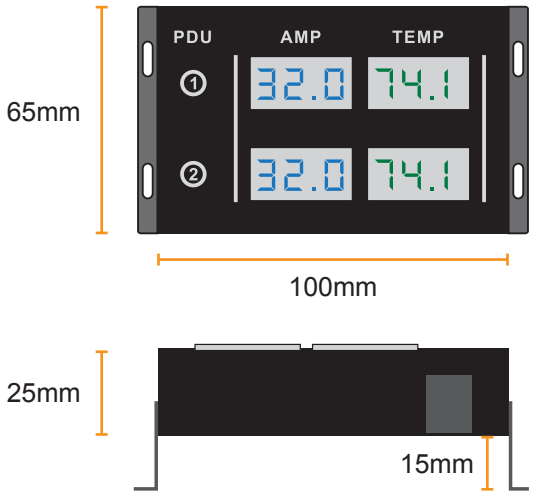
- Plug n Play
- Support two PDUs display amp. and temp.
- Adjustable Mounting Kit for easy installation to cabinet door
- Bundled 3m RJ-11 cable x 2



Package Contents

- Extended Door-mount Amp. / Temp. Display x 1
- Bundled 3m RJ-11 cable x 2
- Screw & tape not provided

Product Dimension



Packing Dimension

- 350(W) x 165(L) x 35(H) mm

Weight

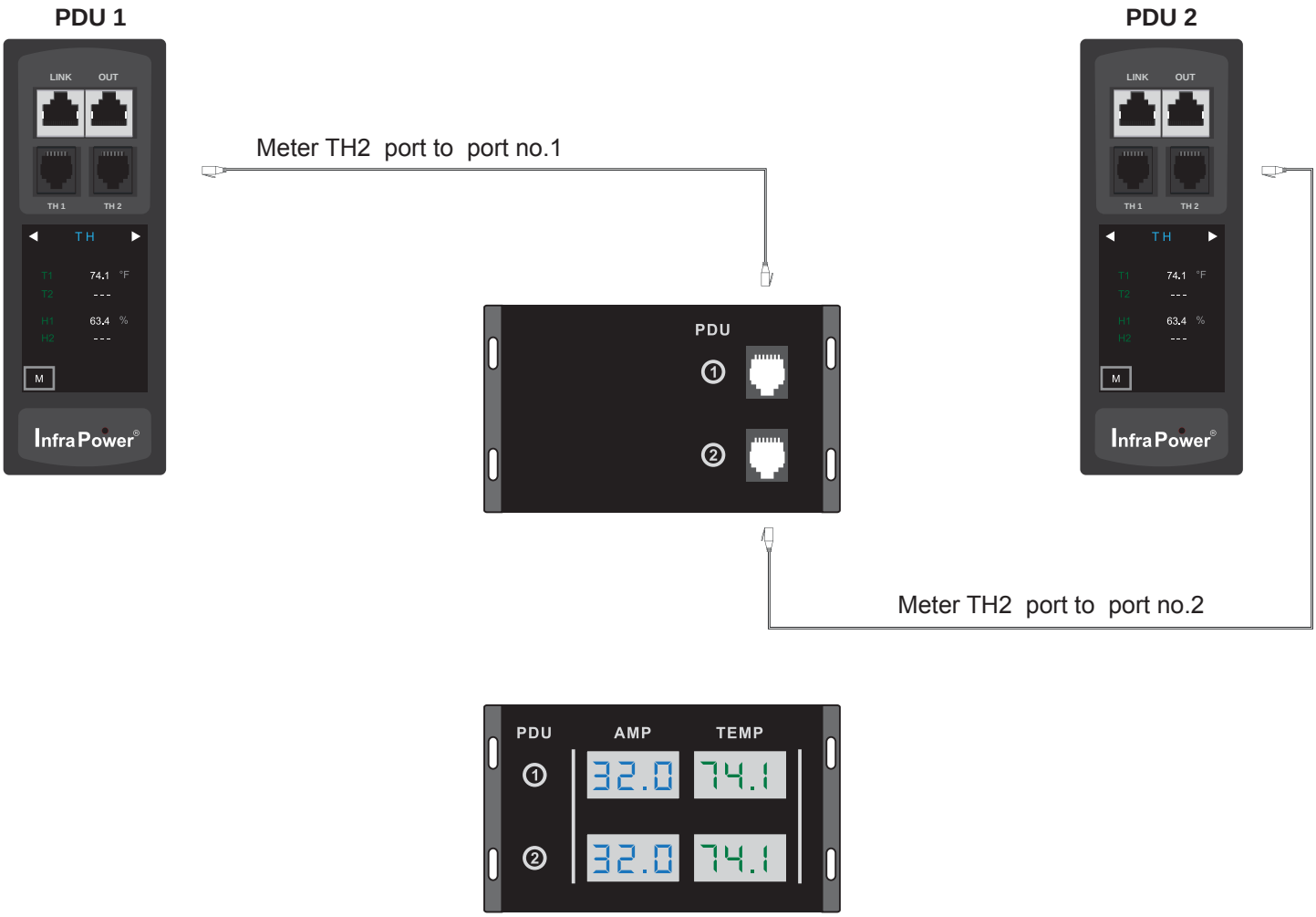
- Net : 0.25kg
- Gross : 0.48kg

< 1.6 > Optional Accessory

Extended Door-mount Amp / Temp. Display

Installation steps :

- connect the meter and extended door-mount PDU display via a bundled RJ-11 cable
- only meter TH2 port supports the door-mount PDU display
- the display on the door top corner position is recommended
- fix the display on the cabinet door by screw or tape



Part II. Software

< 2.1 > Key Features

InfraPower Manger IPM-04 is a free but powerful and user friendly PDU mangement software. The Windows based software consolidates management of max. 800 single & three phase PDUs via 50 IP dongles.

5 concurrent user access are bundled for achieving the demand of multi-user / multi-tasking in nowadays' time-sharing data center operation.

InfraPower IPM-04

Features		
Capacity	IP Dongle Group (Just 1 for 16 PDU levels)	50
	PDU number	800
	Concurrent Users	5
Enhanced Features	Outlet Level kWh & Amp Measurement	✔
	Outlet Scheduling	✔
	Energy Consumption (kWh) Monitoring	✔
	Apparent Power (kVA) Monitoring	✔
	Power Factor Measurement	✔
	Circuit Breaker Monitoring	✔
	SNMP Capability via IP Dongle	✔
Basic Features	Aggregate Current (Amp) Monitoring	✔
	Individual Outlet Switch ON/OFF	✔
	Temp-Humid Monitoring	✔
	Alarm Threhold Setting	✔
	Rising Alert Threshold Setting	✔
	Remote Access via Web	✔
	Graphic User Interface	✔
	Reporting	✔
PDU Series Support	Single & 3 Phase **W** Monitored PDU	✔
	Single & 3 Phase **Wi** Monitored PDU (Outlet Measurement)	✔
	Single & 3 Phase **WS** Switched PDU	✔
	Single & 3 Phase **WSi** Switched PDU (Outlet Measurement)	✔

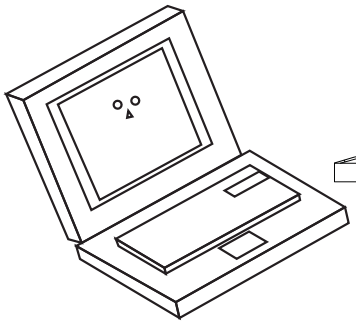
< 2.2 > IP Dongle Configuration

After the completion of IP Dongle connection, please take the following steps to configure the IP Dongle :

Step 1. Prepare a notebook computer to download the IP setup utilities from the link :
http://www.austin-hughes.com/support/utilities/infrapower/IPdongleSetup.msi

Step 2. Double Click the IPDongleSetup.msi and follow the instruction to complete the installation

Step 3. Go to each first level PDU with the notebook computer & a piece of CAT. 5 / 6 cable to configure the IP Dongle by IP setup utilities as below. Please take the procedure for all IP dongles **ONE BY ONE**



CAT. 5 / 6 cable

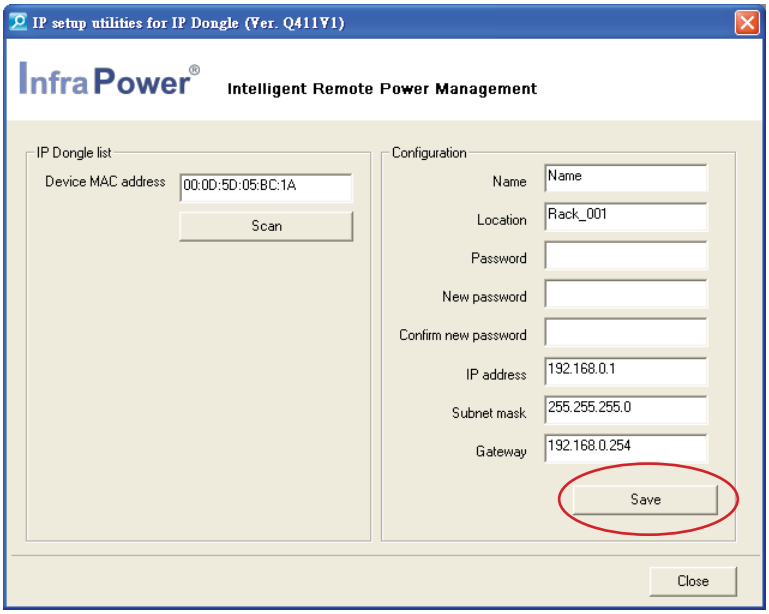
To notebook computer LAN port

To IP Dongle LAN port

IP Dongle on 1st level PDU

Reconnect the IP Dongle with the network device (router or hub), after finish IP Dongle configuration.

Ensure the PDU in power ON status



Write down the new IP address & password for < Setup > purpose, refer to < 3.1 > System Setup

Step 4. Click **" Scan "** to search the connected IP Dongle
Step 5. Enter device name in " **Name** " (min. 4 char. / max. 16 char.). Default is " **Name** "
Step 6. Enter device location in " **Location** " (min. 4 char. / max. 16 char.). Default is " **Rack_001** "
Step 7. Enter password in " **Password** " for authentication (min. 8 char. / max. 16 char.) Default is **" 00000000 "**
Step 8. Enter new password in " **New password** " (min. 8 char. / max. 16 char.)
Step 9. Re-enter new password in " **Confirm new password** "
Step 10. Input the desired " **IP address** " / " **Subnet mask** " / " **Gateway** ", then Click **" Save "** to confirm the input

The default IP setting is as below : IP address : 192.168.0.1
Subnet mask : 255.255.255.0
Gateway : 192.168.0.254

< 2.3 > Hardware Requirements of the Management PC

Please prepare a management PC with the hardware requirements as below for InfraPower Manager - IPM-04

Recommended hardware requirements :

- Processor: Dual Core 2GHz or above
- Memory: 2GB RAM
- Available Disk Space: 500GB
- Drive: DVD ROM drive
- Display: 1440 x 900 or higher resolution monitor

- The default service port of web server is 80.

- A dedicated PC to run InfraPower Manager - IPM-04 is recommended.

- Make sure the management PC is POWER ON & IPM-04 is under operation. Otherwise, daily data backup will NOT be proceeded.

< 2.4 > Supported OS Platform & Language

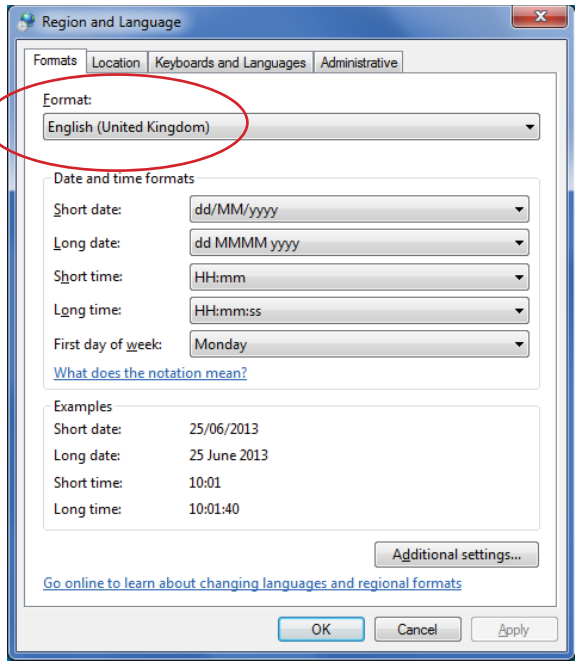
InfraPower Manager – IPM-04 supports the OS platforms & languages as below:

- MS Windows XP Professional with SP3 (32bit only)
- MS Windows 7 Professional with SP1
- MS Windows Server 2003 R2 Standard Edition with SP2
- MS Windows Server 2008 Standard Edition SP2
- MS Windows Server 2008 R2 Standard Edition SP1

Ensure the user logins in the management PC as a member of "Administrators" Group before IPM-04 Installation and execution.

User can select the following languages under Control Panel > Region and Language in English Edition OS:

1) Arabic (Saudi Arabia)
2) Chinese (Traditional, Hong Kong S.A.R.)
3) Dutch (Netherlands)
4) English (Australia)
5) English (United Kingdom)
6) English (United States)
7) French (France)
8) German (Germany)
9) German (Switzerland)
10) Italian (Italy)
11) Japanese (Japan)
12) Korean (Korea)
13) Norwegian (Norway)
14) Portuguese (Portugal)
15) Russian (Russia)
16) Spanish (Spain)
17) Turkish (Turkey)



< 2.5 > Software Download

InfraPower Manager, IPM-04, is a **PDU** management software to enhance the features and benefits of all W series Single & 3 Phase PDUs by providing a centralized and remote management platform, and total reporting with detailed logs & event occurrences.

IPM-04 supports max. 5 concurrent login users and manage multi- IP Dongle groups max. 50, hence the concurrent login users can access & remote PDUs max. 800 (50 IP dongles x 16 level PDUs).

Software download

Please download the InfraPower Manager - IPM-04 to the management PC
from the link **http://www.austin-hughes.com/support/software/infrapower/IPM-04.msi**

Double click the IPM-04.msi and follow the instruction to complete the installation.

InfraPower Manager (IPM-04) Setup
Welcome to the InfraPower Manager (IPM-04) Setup Wizard
The Setup Wizard will install InfraPower Manager (IPM-04) on your computer. Click "Next" to continue or "Cancel" to exit the Setup Wizard.
< Back
Next >
Cancel

click " **Next** "

click " **Install** "

InfraPower Manager (IPM-04) Setup
Completing the InfraPower Manager (IPM-04) Setup Wizard
Click the "Finish" button to exit the Setup Wizard.
< Back
Finish
Cancel

click " **Finish** "

Complete

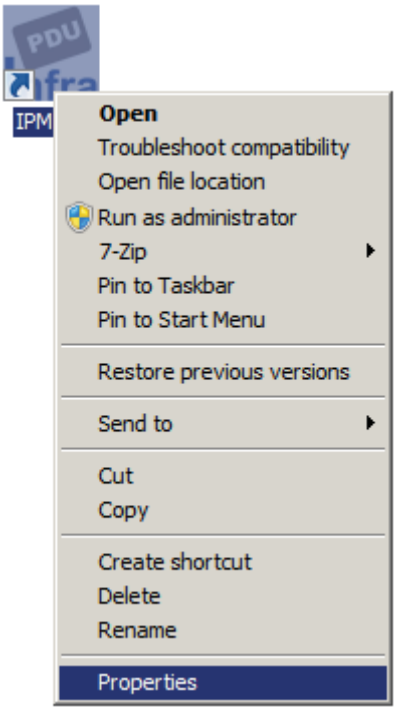
< 2.6 > First Time Start-up Setting

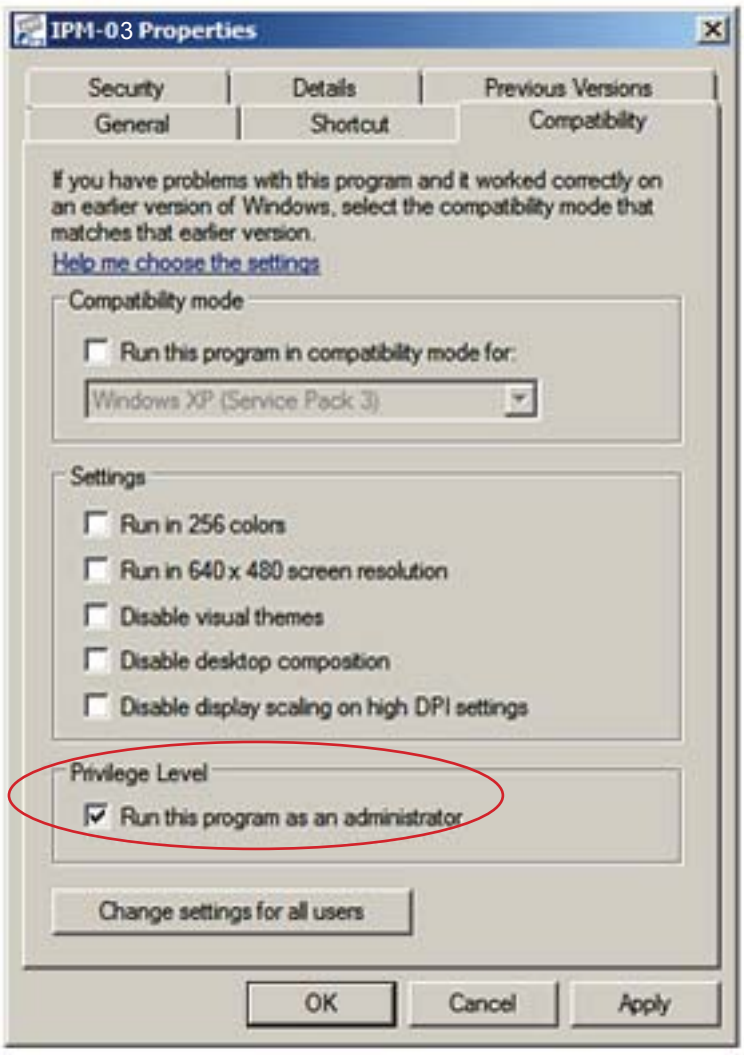
Step 1. Double Click the InfraPower Manager - IPM-04
and follow the instruction to complete start-up setting.

IPM-04
InfraPower Manager

For MS Windows 7 and MS Windows server 2008,
it requires to run a program with administrator rights before execution:

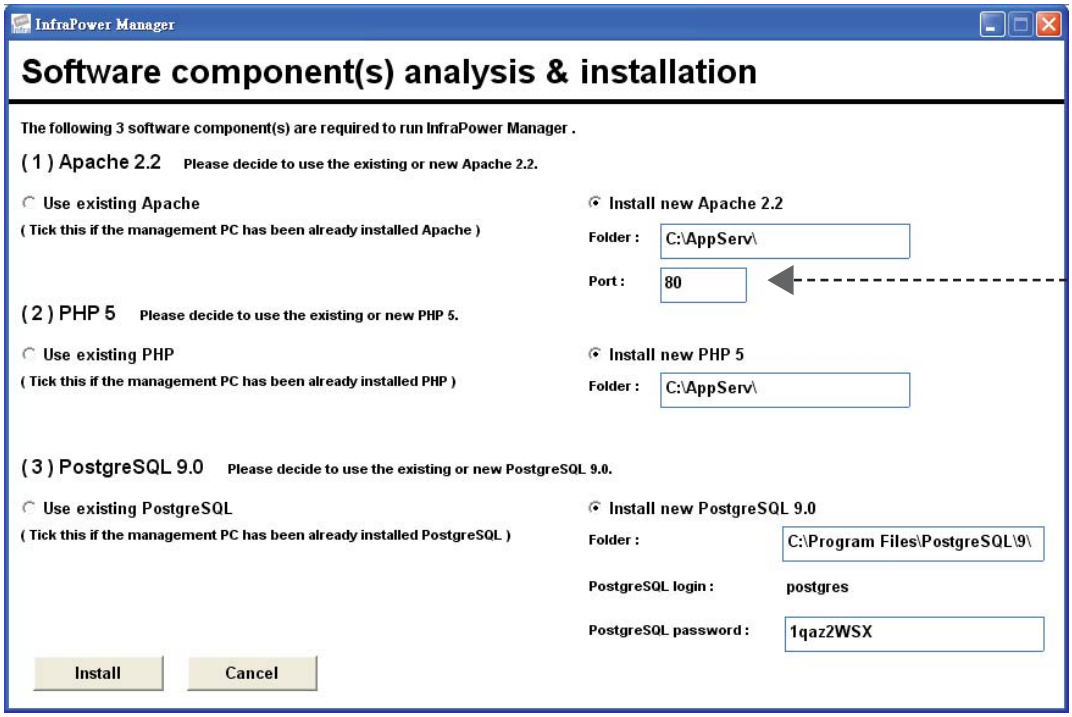
- Right click InfraPower Manager - IPM-04, and then select **Properties**.
- Click the **Compatibility** tab.
- Tick the box **Run this program as an administrator**, and then click OK.




IPM-03 Properties
Security
Details
Previous Versions
General
Shortcut
Compatibility
If you have problems with this program and it worked correctly on an earlier version of Windows, select the compatibility mode that matches that earlier version.
Help me choose the settings
Compatibility mode
Run this program in compatibility mode for:
Windows XP (Service Pack 3)
Settings
Run in 256 colors
Run in 640 x 480 screen resolution
Disable visual themes
Disable desktop composition
Disable display scaling on high DPI settings
Privilege Level
Run this program as an administrator
Change settings for all users
OK
Cancel
Apply

Step 2. Click " **Next** " in " **InfraPower Manager start-up setting** " box

Step 3. Input the fields of the following window & Click " **Install** "


InfraPower Manager
Software component(s) analysis & installation
The following 3 software component(s) are required to run InfraPower Manager .
(1) Apache 2.2 Please decide to use the existing or new Apache 2.2.
Use existing Apache
(Tick this if the management PC has been already installed Apache)
Install new Apache 2.2
Folder : C:\AppServ\
Port : 80
(2) PHP 5 Please decide to use the existing or new PHP 5.
Use existing PHP
(Tick this if the management PC has been already installed PHP)
Install new PHP 5
Folder : C:\AppServ\
(3) PostgreSQL 9.0 Please decide to use the existing or new PostgreSQL 9.0.
Use existing PostgreSQL
(Tick this if the management PC has been already installed PostgreSQL)
Install new PostgreSQL 9.0
Folder : C:\Program Files\PostgreSQL\9\
PostgreSQL login : postgres
PostgreSQL password : 1qaz2WSX
Install
Cancel

If the port of web server is not 80, please input the appropriate no. here and follow the instruction in " Change port no. of web server" next page to make the change effective.

PostgreSQL password can be changed by user.
The password **MUST** contain at least three of the following four character groups:

- English uppercase characters (A through Z)
- English lowercase characters (a through z)
- Numerals (0 through 9)
- Non-alphabetic characters (such as !, $, #, %)

Complete

< 2.7 > Web Server Port no. Change

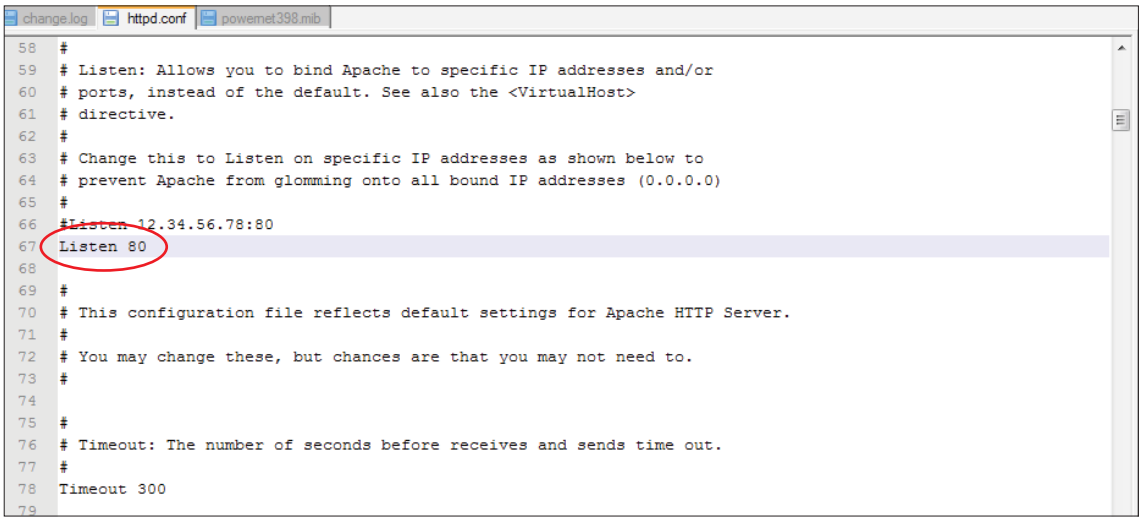
Web server port no. change

If users want to use another port no. instead of 80, please take the following steps after InfraPower Manager IPM-04 " **First time start-up setting** " is completed.

Step 1. Go to the path of web server being installed. (Default: C:\AppServ\Apache2.2\conf\ )

Step 2. Open " **httpd.conf** " & change " **Listen 80** " to " **Listen xx** " where xx means that the port no. will be selected by the user

Step 3. Save the change of " **httpd.conf** "


change.log
httpd.conf
powernet398.mib
58 #
59 # Listen: Allows you to bind Apache to specific IP addresses and/or
60 # ports, instead of the default. See also the <VirtualHost>
61 # directive.
62 #
63 # Change this to Listen on specific IP addresses as shown below to
64 # prevent Apache from glomming onto all bound IP addresses (0.0.0.0)
65 #
66 #Listen 12.34.56.78:80
67 Listen 80
68
69 #
70 # This configuration file reflects default settings for Apache HTTP Server.
71 #
72 # You may change these, but chances are that you may not need to.
73 #
74
75 #
76 # Timeout: The number of seconds before receives and sends time out.
77 #
78 Timeout 300
79

Step 4. Restart Apache services.
Go to Control Panel > Administrative Tools > Services > Apache2.2 & Click " **Restart** "

Complete

Part III. System Setup & Remote Access

< 3.1 > System Setup

Users can follow below step 1 - 3 to access the management PC and InfraPower Manager IPM-04

Step 1. Open Internet Explorer (I.E.), version 8.0 or above

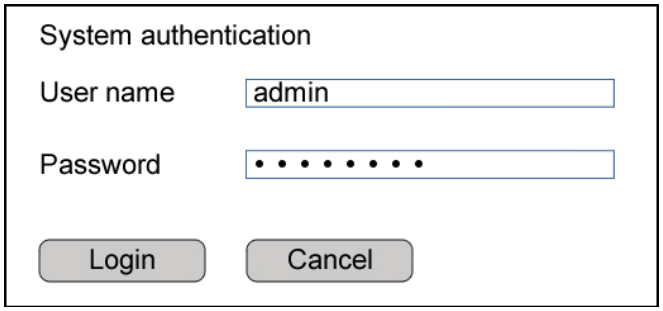
Step 2. Enter the URL of management PC into the address bar

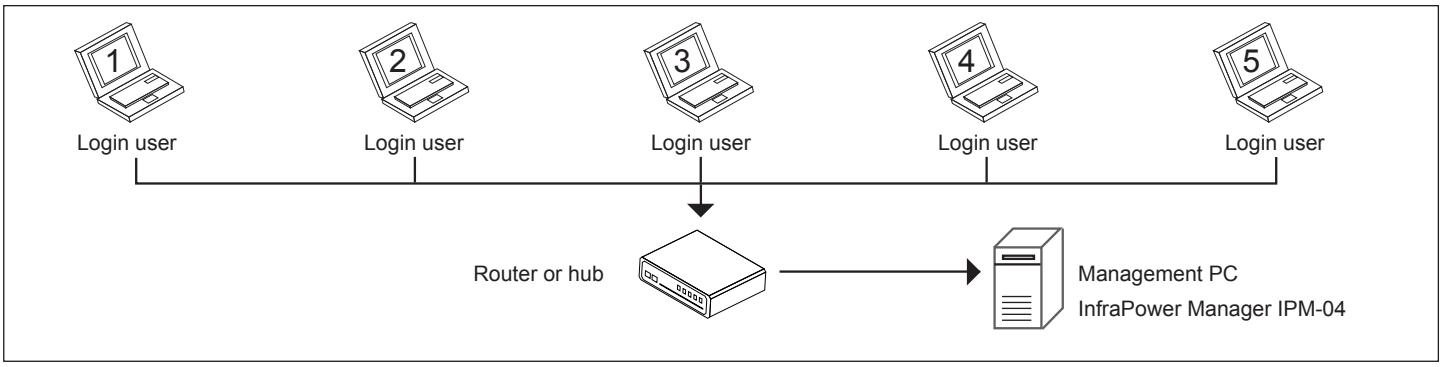
(If fail to access, please ask MIS to check if the port for web server is enable. Default port : 80)

e.g. http://192.168.0.1/IPM-04/

Step 3. Enter " **User name** " . Default is " **admin** "

Enter " **Password** " . Default is " **00000000** "





Only one administrator among 5 concurrent users

Only Administrator is authorised to access < **User** >, < **Setup** >, < **Alarm** >, < **General** > & < **Backup** >

< 3.1 > System Setup

In < **User** >, administrator can create 4 more operators (concurrent users).

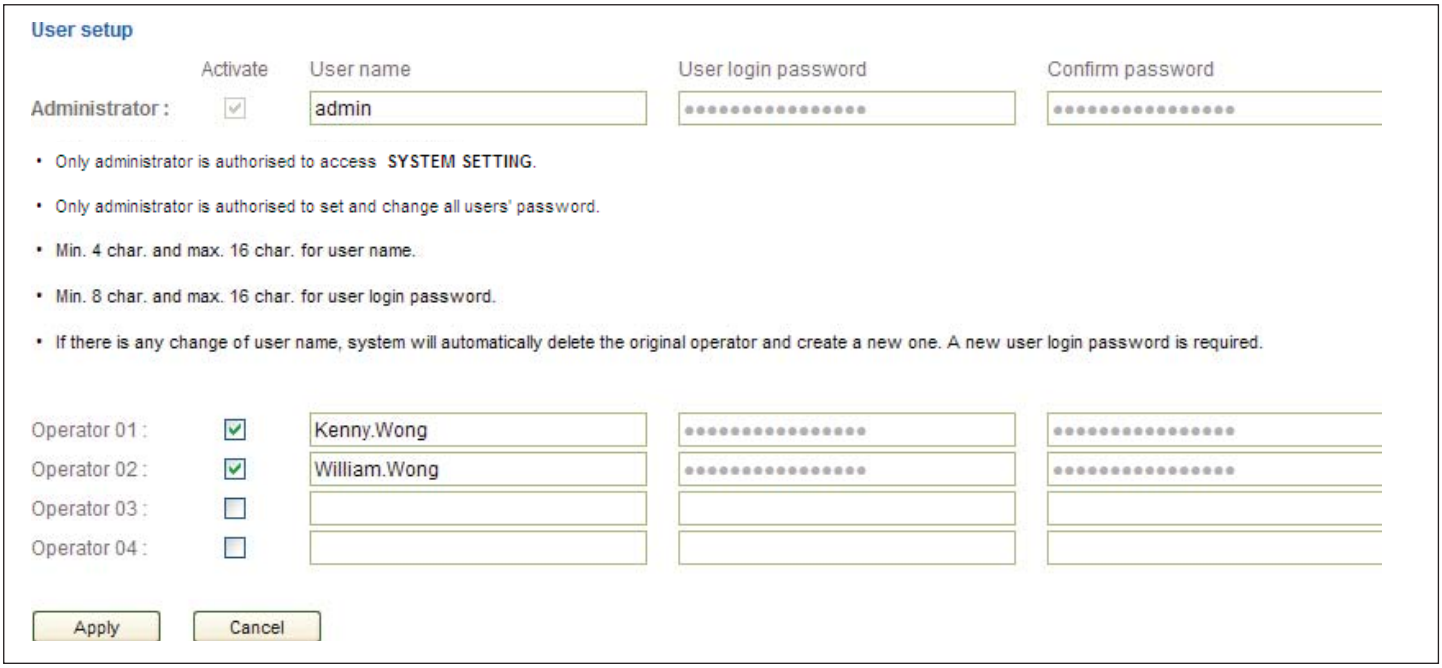
Step 1. Tick “ **Operator 1:** “

Step 2. Input “ **User name** “ & “ **User login password** “

Step 3. Input user login password in “ **Confirm password** “ again

Step 4. Repeat Step 1 to 3 for other operators

Step 5. Click “ **Apply** “ to finish the user setup


User setup
Activate
User name
User login password
Confirm password
Administrator :
admin
• Only administrator is authorised to access SYSTEM SETTING.
• Only administrator is authorised to set and change all users' password.
• Min. 4 char. and max. 16 char. for user name.
• Min. 8 char. and max. 16 char. for user login password.
• If there is any change of user name, system will automatically delete the original operator and create a new one. A new user login password is required.
Operator 01 :
Kenny.Wong
Operator 02 :
William.Wong
Operator 03 :
Operator 04 :
Apply
Cancel

< 3.1 > System Setup

In **< Setup >**, administrator can activate max. 50 IP Dongle groups & set the group command password

Step 1. " Activate " IP Dongle group 01

Step 2. Input **" IP address "** & **" password "** of the IP Dongle

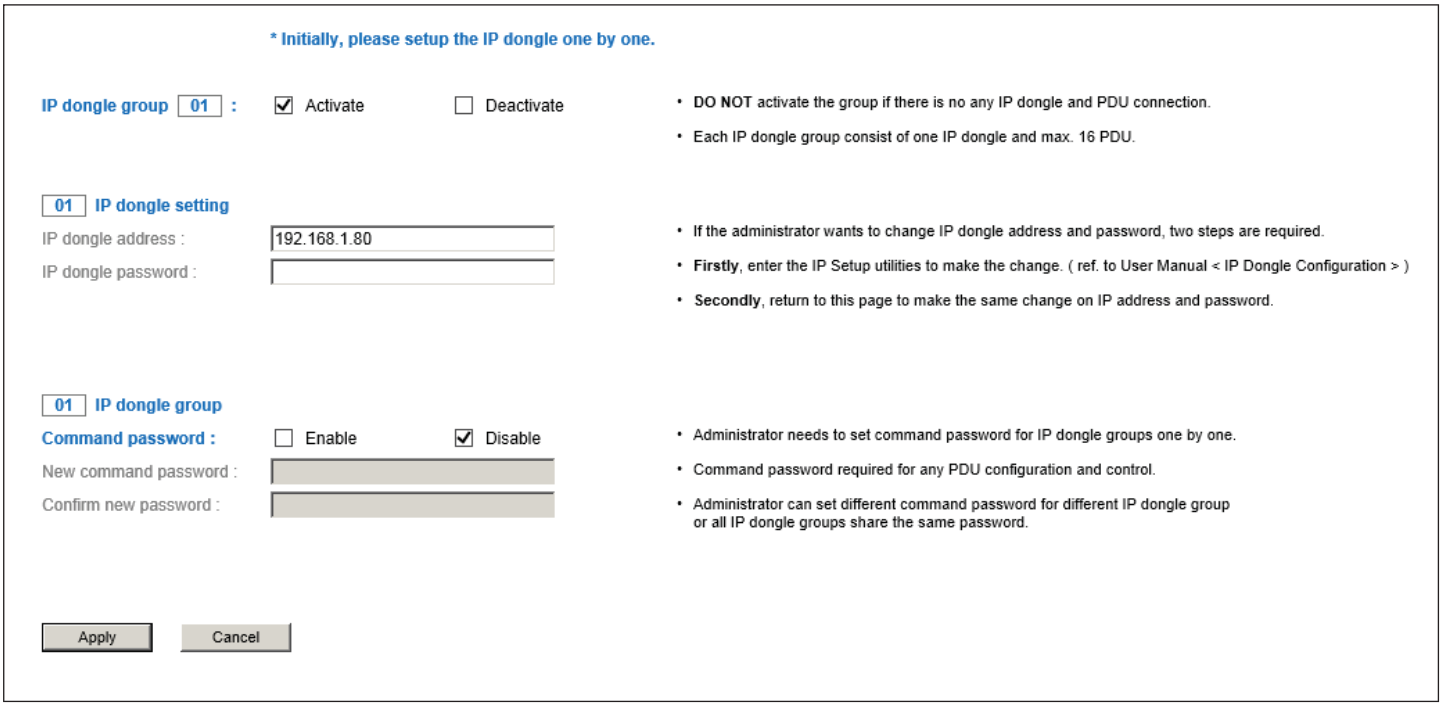
Step 3. " **Enable** " Command password

Step 4. Input " **New command password** ". Default is " **00000000** "

Step 5. Input new command password in " **Confirm new password** " again.

Step 6. Click " **Apply** " to finish the IP Dongle group setup

Step 7. Repeat step 1 to 6 for other IP Dongle groups


* Initially, please setup the IP dongle one by one.
IP dongle group 01 :
Activate
Deactivate
DO NOT activate the group if there is no any IP dongle and PDU connection.
Each IP dongle group consist of one IP dongle and max. 16 PDU.
01 IP dongle setting
IP dongle address :
192.168.1.80
IP dongle password :
If the administrator wants to change IP dongle address and password, two steps are required.
Firstly, enter the IP Setup utilities to make the change. (ref. to User Manual < IP Dongle Configuration >)
Secondly, return to this page to make the same change on IP address and password.
01 IP dongle group
Command password :
Enable
Disable
New command password :
Confirm new password :
Administrator needs to set command password for IP dongle groups one by one.
Command password required for any PDU configuration and control.
Administrator can set different command password for different IP dongle group or all IP dongle groups share the same password.
Apply
Cancel

< 3.1 > System Setup

In < **Alarm** >, administrator can configure the alarm email server & max. 5 email recipients to receive alarm notifications from the software

Default is **“Disable”.**

Step 1. “ Enable “ alarm email

Step 2. Input **“ SMTP server ”** and **“ SMTP port “**

Step 3. Input **“ User email “**

Step 4. “ Enable “ or **“ Disable “** the **“ SMTP authentication “**

Step 5. Input **“ User name “** and **“ Password “**

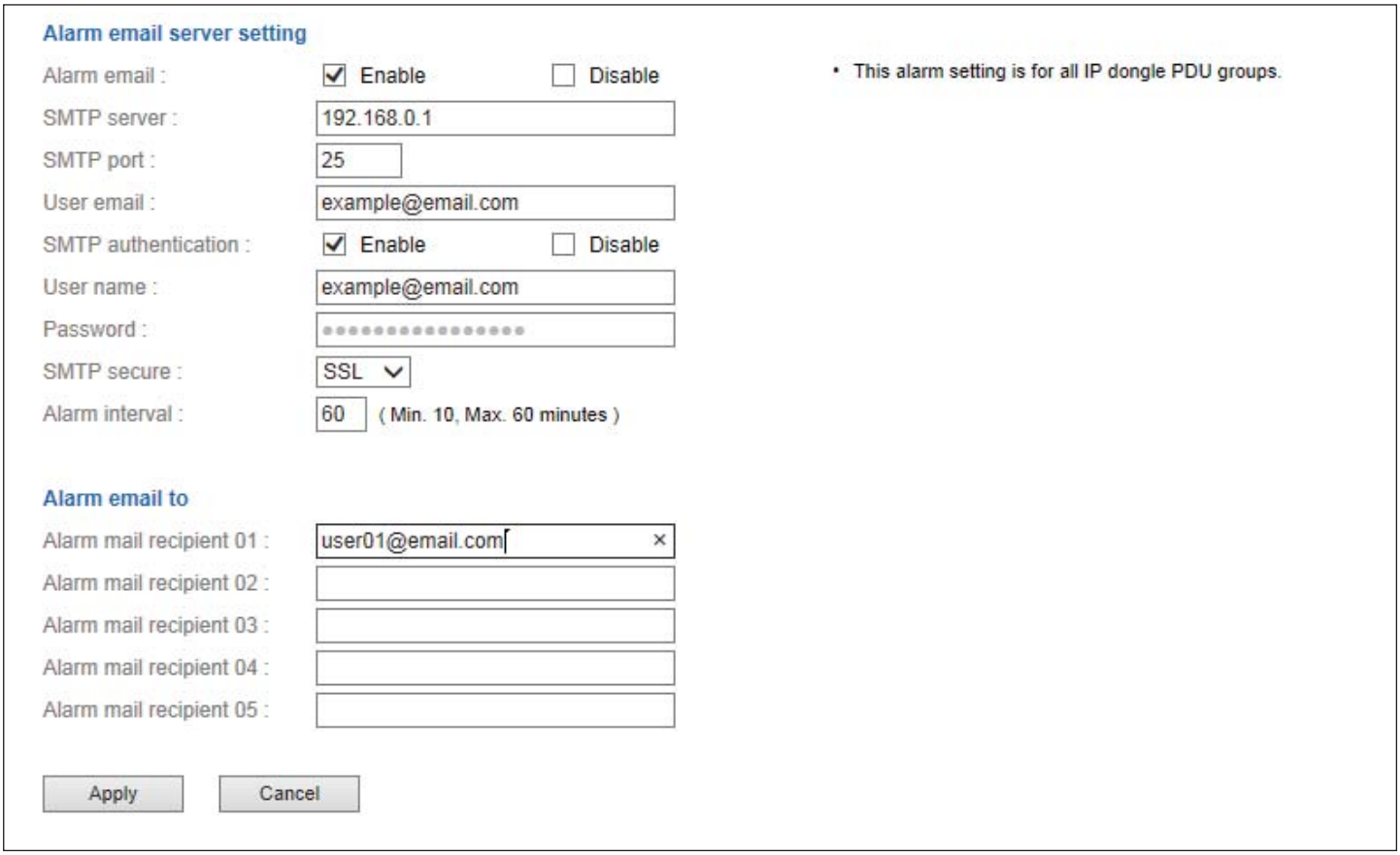
Step 6. Select the **“ SMTP secure “** (None / SSL / TLS)

Step 7. Input the **“ Alarm interval “**

Step 8. Input the alarm recipient email account in **“ Alarm mail recipient 01 “**

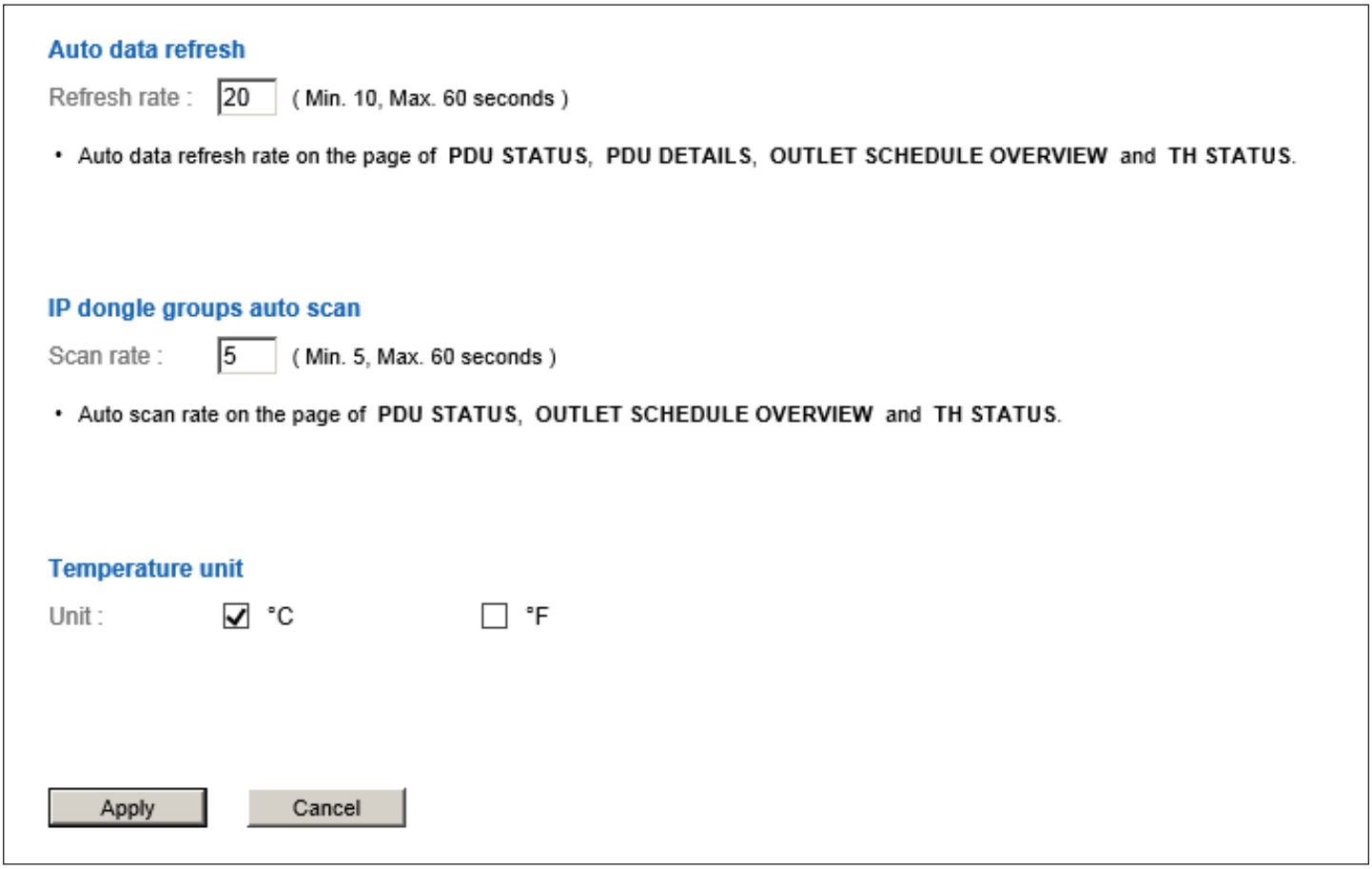
Step 9. Repeat step 8 for other alarm recipients

Step 10. Click **“ Apply “** to finish the alarm email server setting

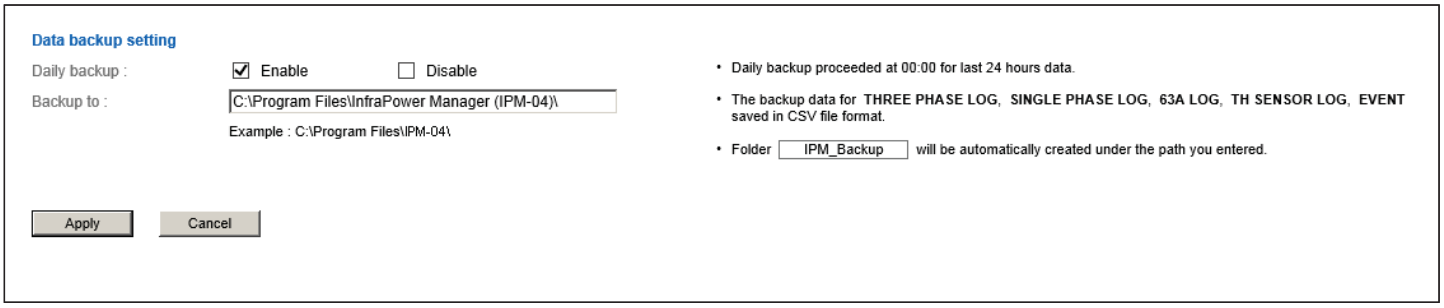

Alarm email server setting
Alarm email : Enable Disable
SMTP server : 192.168.0.1
SMTP port : 25
User email : example@email.com
SMTP authentication : Enable Disable
User name : example@email.com
Password :
SMTP secure : SSL
Alarm interval : 60 (Min. 10, Max. 60 minutes)
• This alarm setting is for all IP dongle PDU groups.
Alarm email to
Alarm mail recipient 01 : user01@email.com
Alarm mail recipient 02 :
Alarm mail recipient 03 :
Alarm mail recipient 04 :
Alarm mail recipient 05 :
Apply
Cancel

< 3.1 > System Setup

In < **General** >, administrator can change the “ **Refresh rate** “ , “ **Scan rate** “ & “ **Temperature unit** “ across all IP Dongle groups


Auto data refresh
Refresh rate : 20 (Min. 10, Max. 60 seconds)
• Auto data refresh rate on the page of PDU STATUS, PDU DETAILS, OUTLET SCHEDULE OVERVIEW and TH STATUS.
IP dongle groups auto scan
Scan rate : 5 (Min. 5, Max. 60 seconds)
• Auto scan rate on the page of PDU STATUS, OUTLET SCHEDULE OVERVIEW and TH STATUS.
Temperature unit
Unit : °C °F
Apply
Cancel

In < **Backup** >
Default is “ **Enable** “
Default Backup Path : “ **C:\Program Files\InfraPower Manager (IPM-04)** “


Data backup setting
Daily backup : Enable Disable
Backup to : C:\Program Files\InfraPower Manager (IPM-04)\
Example : C:\Program Files\IPM-04\
• Daily backup proceeded at 00:00 for last 24 hours data.
• The backup data for THREE PHASE LOG, SINGLE PHASE LOG, 63A LOG, TH SENSOR LOG, EVENT saved in CSV file format.
• Folder IPM_Backup will be automatically created under the path you entered.
Apply
Cancel

< 3.1 > System Setup

In **< Sys log >**, it provides past 2000 event records of :

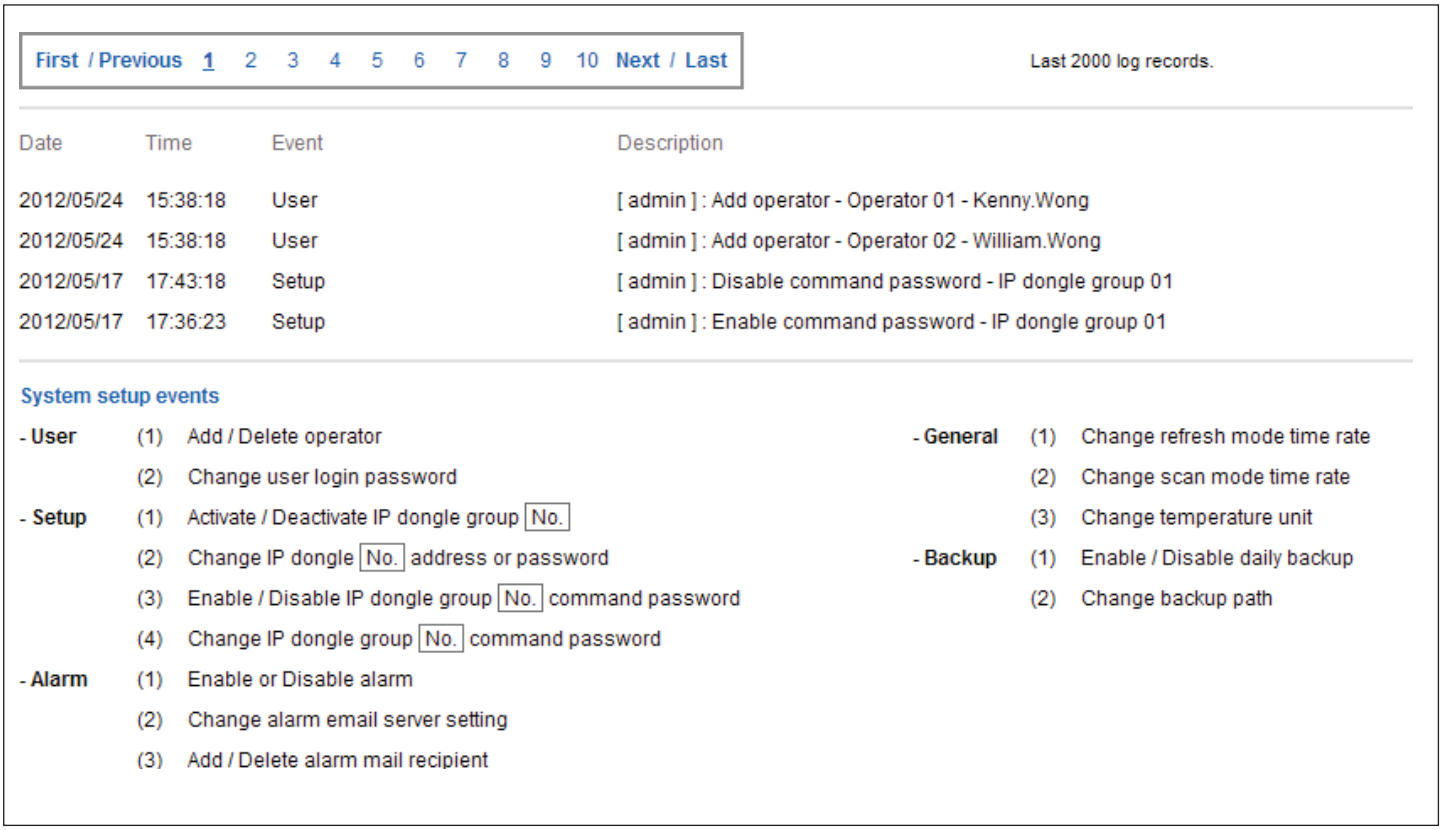
- < User >

- < Setup >

- < Alarm >

- < General >

- < Backup >


First / Previous 1 2 3 4 5 6 7 8 9 10 Next / Last
Last 2000 log records.
Date Time Event Description
2012/05/24 15:38:18 User [admin] : Add operator - Operator 01 - Kenny.Wong
2012/05/24 15:38:18 User [admin] : Add operator - Operator 02 - William.Wong
2012/05/17 17:43:18 Setup [admin] : Disable command password - IP dongle group 01
2012/05/17 17:36:23 Setup [admin] : Enable command password - IP dongle group 01
System setup events
- User (1) Add / Delete operator
(2) Change user login password
- Setup (1) Activate / Deactivate IP dongle group No.
(2) Change IP dongle No. address or password
(3) Enable / Disable IP dongle group No. command password
(4) Change IP dongle group No. command password
- Alarm (1) Enable or Disable alarm
(2) Change alarm email server setting
(3) Add / Delete alarm mail recipient
- General (1) Change refresh mode time rate
(2) Change scan mode time rate
(3) Change temperature unit
- Backup (1) Enable / Disable daily backup
(2) Change backup path

< 3.2 > Remote Access

After the completion of < **System Setup** > administrator and 4 concurrent users can access the management PC remotely. All of them can follow the steps below to access management PC & IPM-04

Step 1. Add the port of web server in the firewall settings of the management PC.

- Open " **Control Panel** "
- Select " **Windows Firewall "**
- Select " **Advanced settings "**
- Right Click " **Inbound Rules** " & select " **New Rule…** "
- Select " **Port** " & Click " **Next>** "
- Select " **TCP** " then " **All local port**s " & Click " **Next>** "
- Select " **Allow the connection** " & Click " **Next>** "
- Tick all three options & Click " **Next>** "
- Input the " **Name** " & " **Description** " of the port & Click " **Finish** "

Step 2. Open the web browser of remote client PC

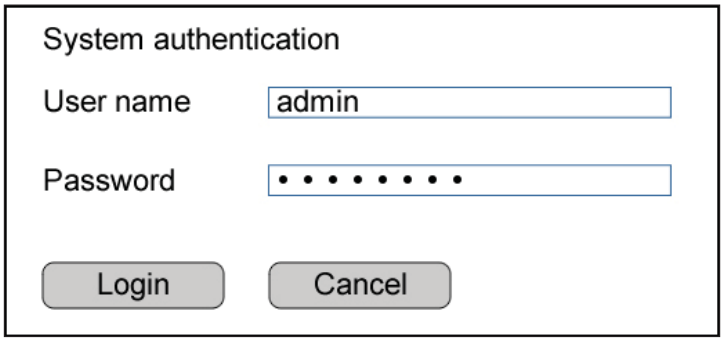
Step 3. Input the URL of InfraPower Manager IPM-04 in the address bar

e.g. http://192.168.0.1/IPM-04/

If the port no. of web server is not 80, please enter the appropriate port no. follow the IP address e.g. http://192.168.0.1:81/IPM-04/

Step 4. System authentication page pops up automatically.

Input " **User name** ", " **Password** " & Click " **Login** "



Part IV. Software Usage & Operation

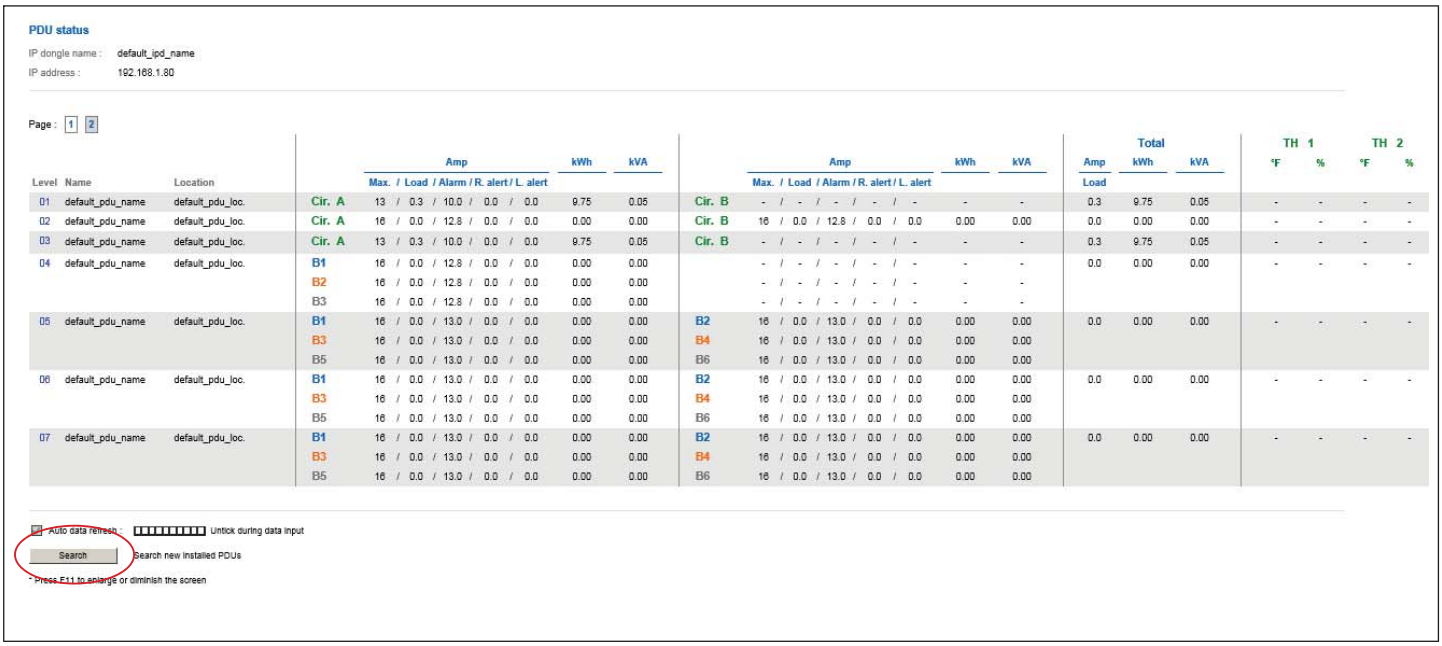
< 4.1 > Status

< Status > provides

- **Search** function to search new installed PDUs in each IP Dongle group.

  During searching process, the PDU system timer will be synchronized from the management PC

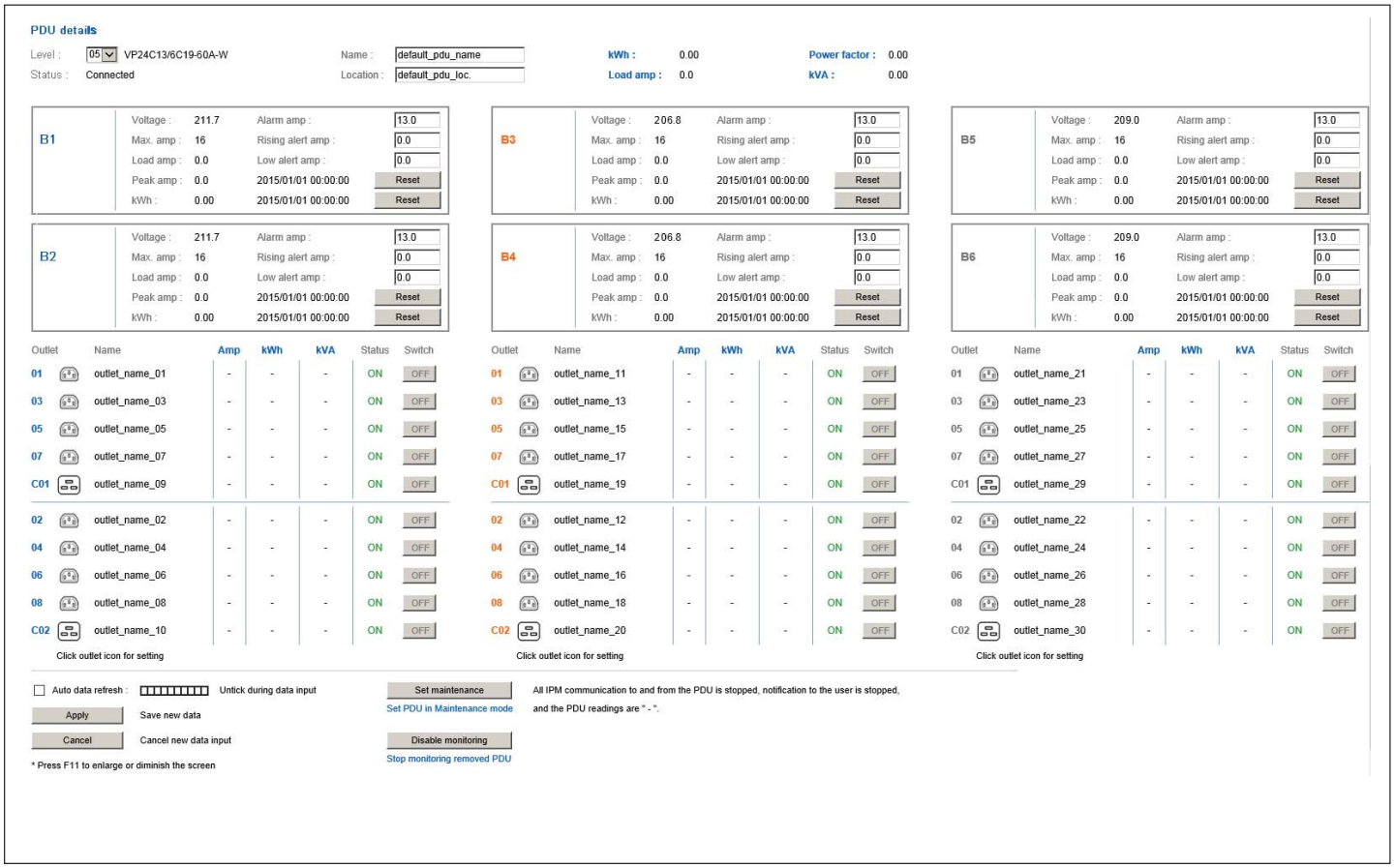
- **Scan** function to monitor the PDUs' status of each IP Dongle group **ONE by ONE**



< 4.2 > Details

In < **Details** >,

- Change “ **Name** “ and “ **Location** “ of PDU & Click “ **Apply** “
- Change “ **Alarm amp.** “ . “ **Rising alert amp.** “ & “ **Low alert amp.** “ of PDU’s banks or circuits & Click “ **Apply** “
- Click “ **Reset** “ to reset peak amp. and kWh of PDU’s banks or circuits if necessary
- Click “ **ON / OFF** “ to switch ON / OFF outlet (Switched PDU only)
- View On / OFF status of each PDU’s outlet
- View aggregated current on the PDU
- View latest loading & energy consumption of each PDU outlet (Outlet Measurement PDU only)
- View latest Voltage of each PDU bank or circuit



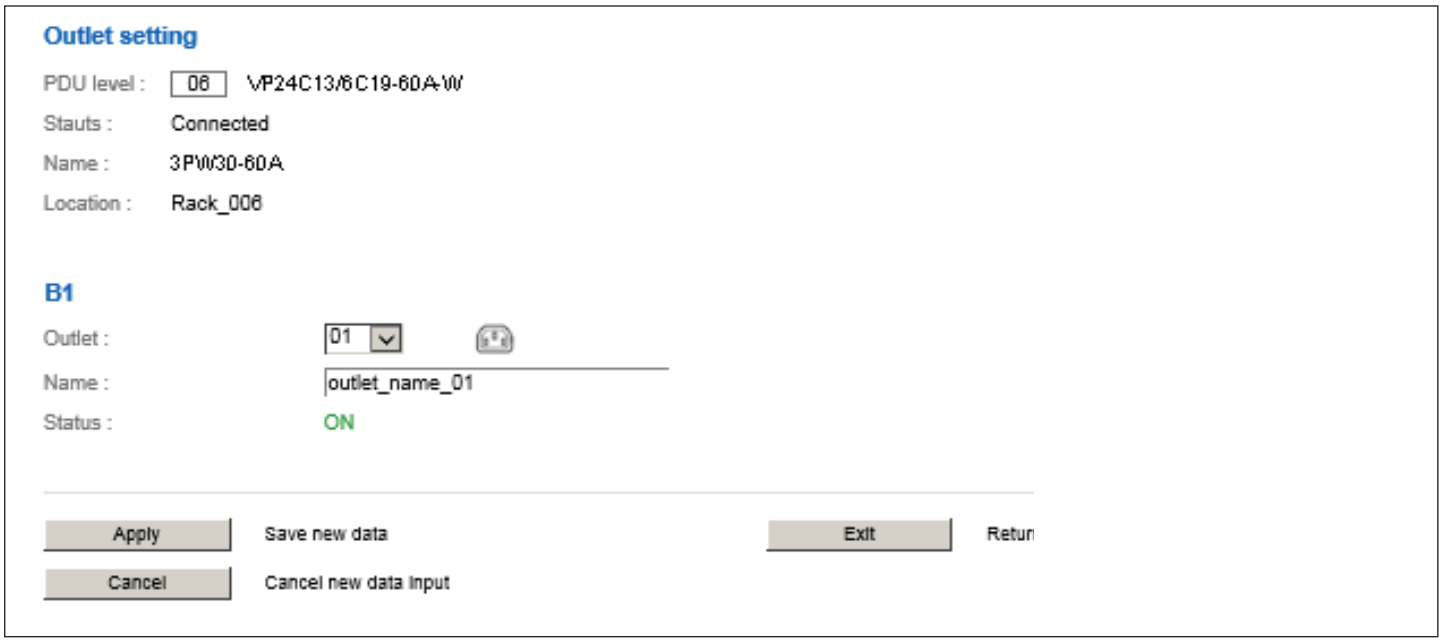
< 4.3 > Outlet Setting

In < **Outlet setting** >,

- Change PDU's outlet name
- Change " **Power up sequence delay** " of PDU's outlet (Switched PDU only)
- Change " **Alarm amp.** " , " **Rising alert amp.** " & " **Low alert amp.** " of PDU's outlet (Outlet Measurement PDU only)

Click " **Apply** " to finish the above settings

- Click " **Reset** " to reset peak amp. or kWh of PDU's outlet (Outlet Measurement PDU only)

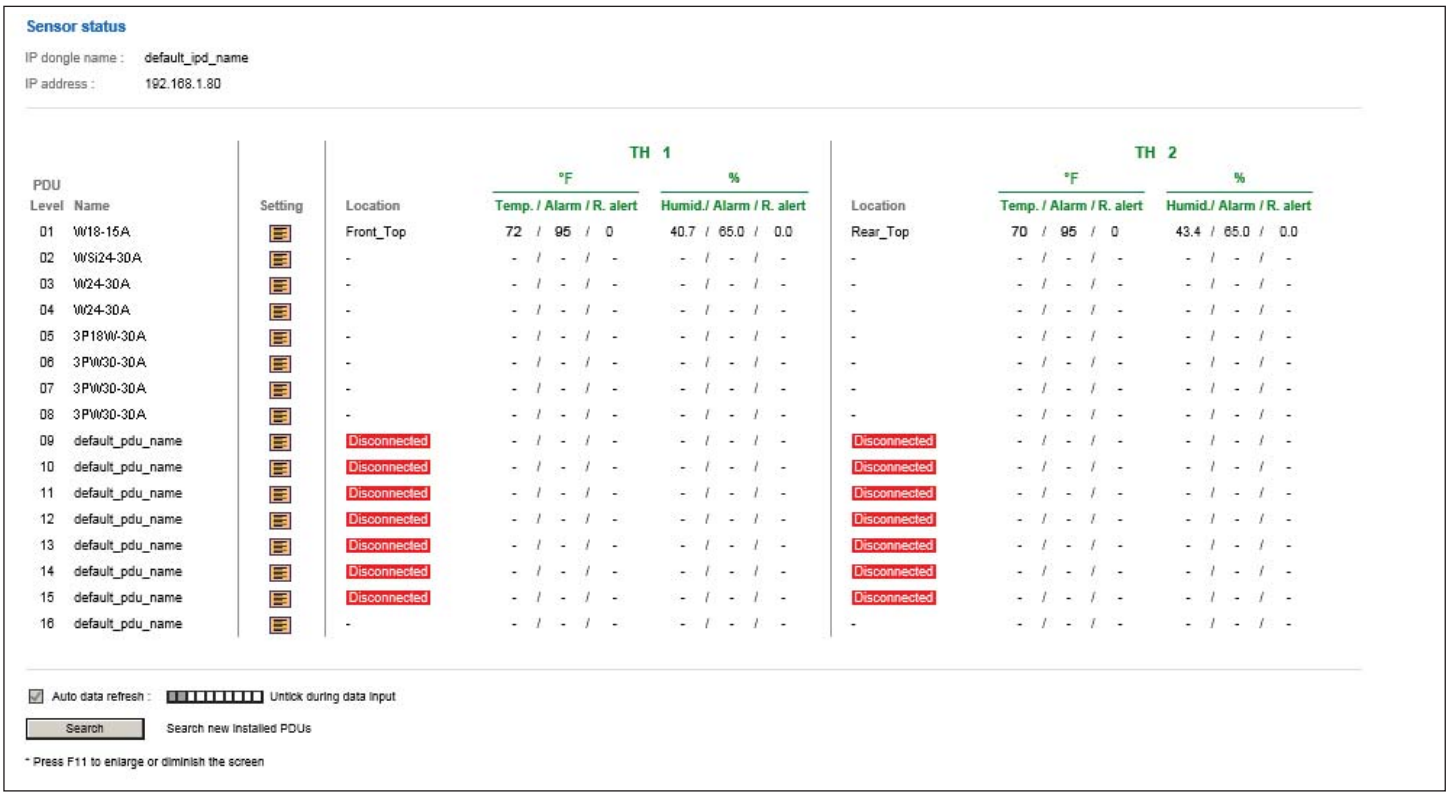


< 4.4 > Sensor Status

In < **TH status** >,

- View status, location, latest reading & alarm setting of Temp. & Humid sensors

The GUI will not show the readings if the TH sensors are **NOT** installed & activated.



< 4.5 > Sensor Setting

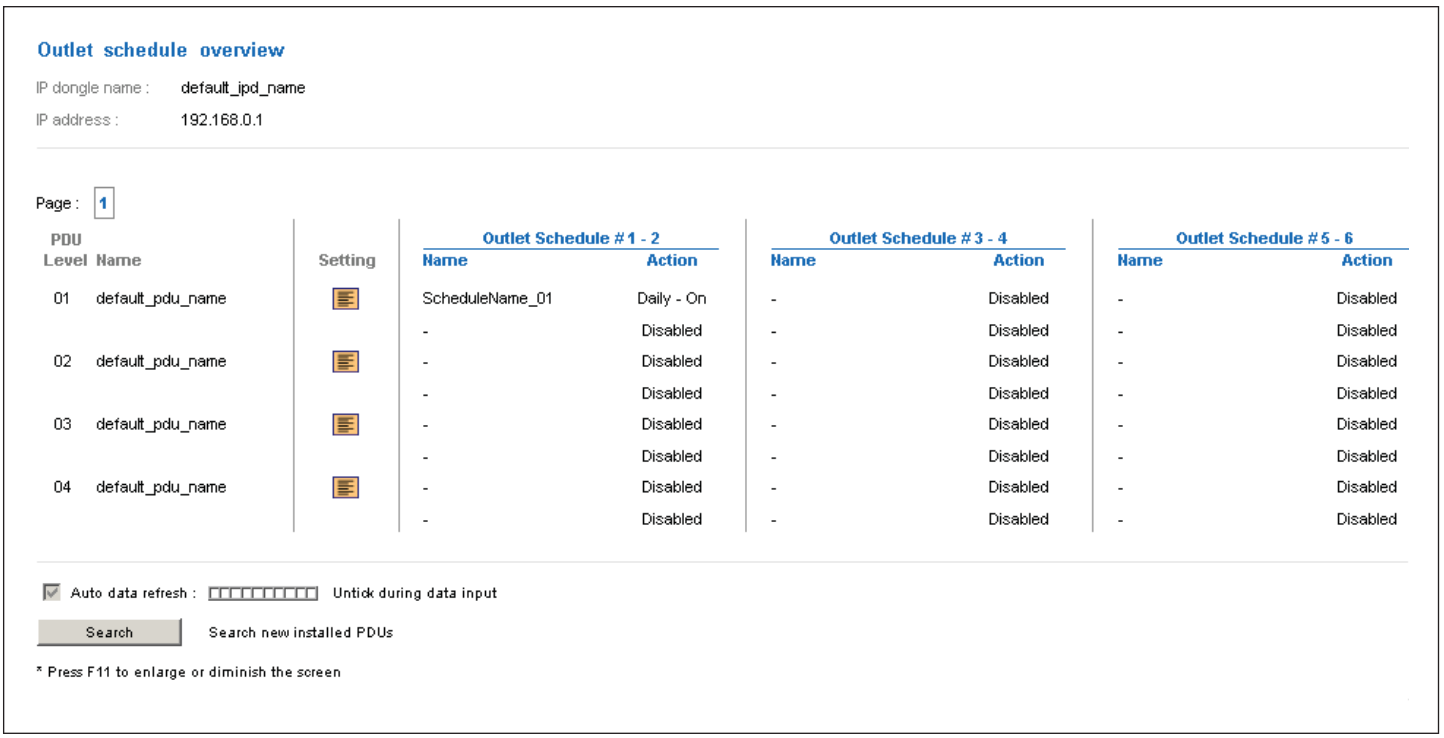
In < **TH setting** >,

- Default TH setting : Deactivate
- “ **Activate** ” Temp. & Humid sensors ONLY when they are connected
- Change “ **Location** ” , “ **Rising alert Setting** “ & “**Alarm Setting** ” of Temp. & Humid sensors
- Click “ **Apply** ” to finish the above settings

If no any TH sensor connected, NEVER activate.

< 4.6 > Outlet Schedule Overview

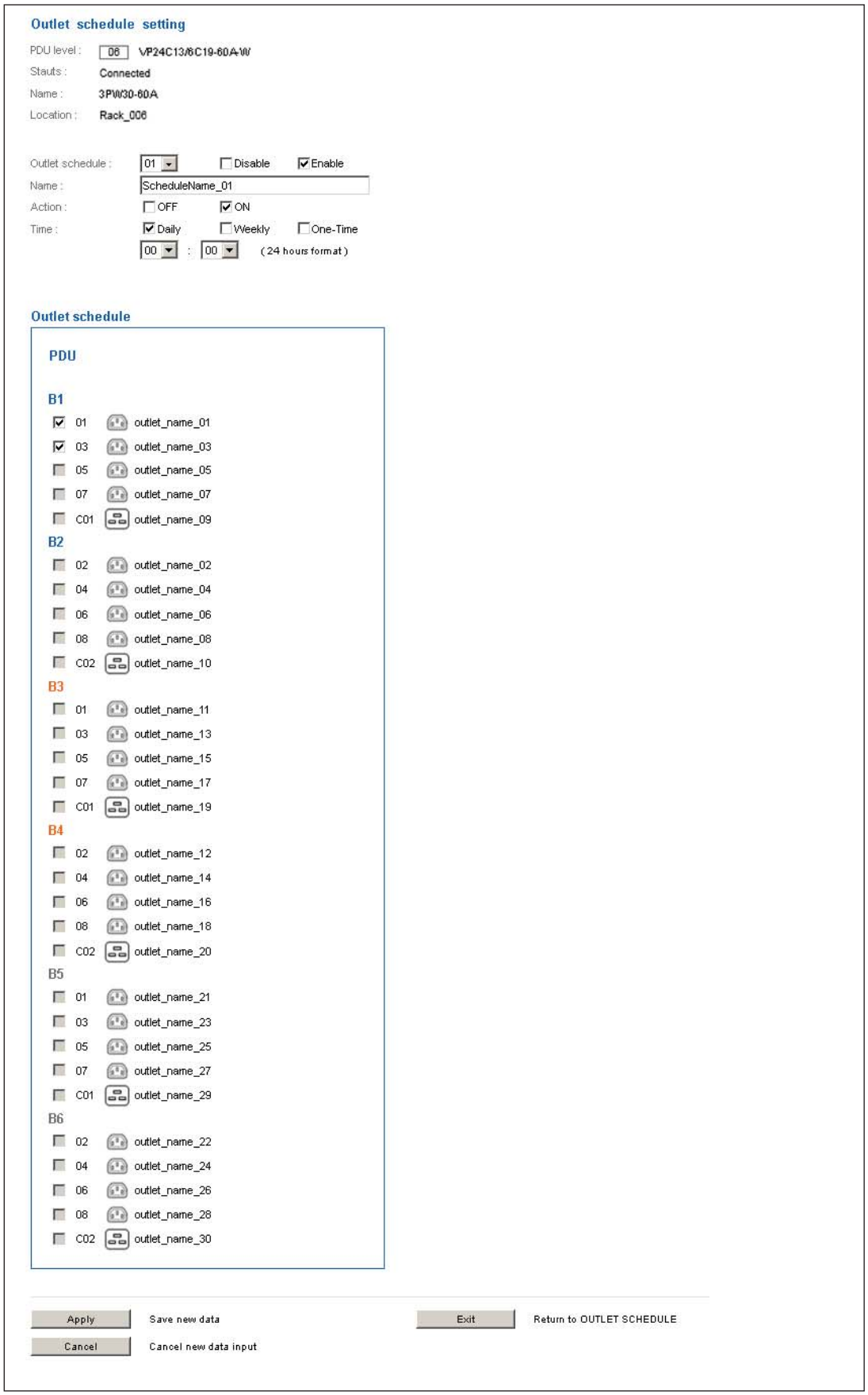
< **Outlet Schedule Overview** > provides an overview on outlet schedule setting of PDUs, and scan the page by IP Dongle group one by one.



< 4.7 > Outlet Schedule Setting

In < **Outlet Schedule Setting** >, user can set max. 6 outlet On / Off schedules in each PDU.

The outlet schedule can be set on one-time, daily or weekly basis. (Switched PDU only)



< 4.7 > Outlet Schedule Setting

PDU outlet schedule is a function allowing users to set a specific time to switch either ON or OFF the outlets on daily, weekly or one-time basis.

Each PDU provides **6 schedule tasks**. Users can follow the steps below to enable the PDU outlet schedule

Step 1. Go to < **Outlet Schedule Overview** > page, Click " **Setting** "

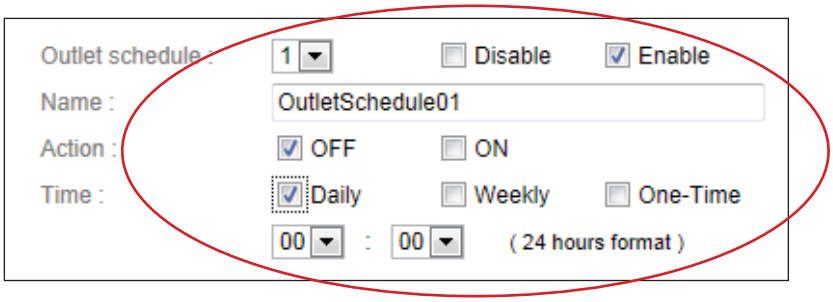
< 4.7 > Outlet Schedule Setting

Step 2. In < **Outlet Schedule Setting** > page, Select " **Outlet schedule 1** " & Tick " **Enable** "

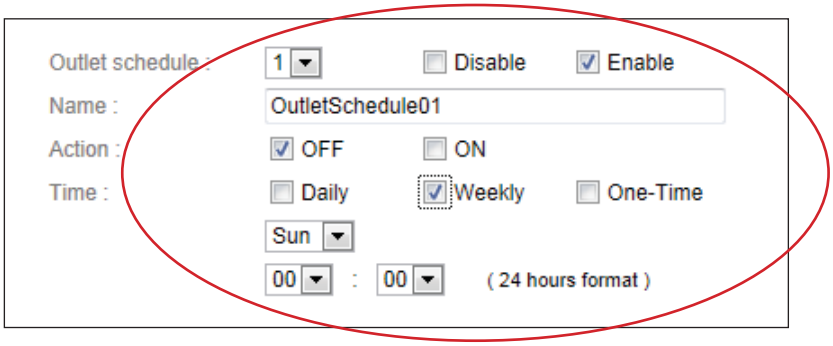
Step 3. Provide the name of the outlet schedule

Step 4. Select the action (either ON or OFF)

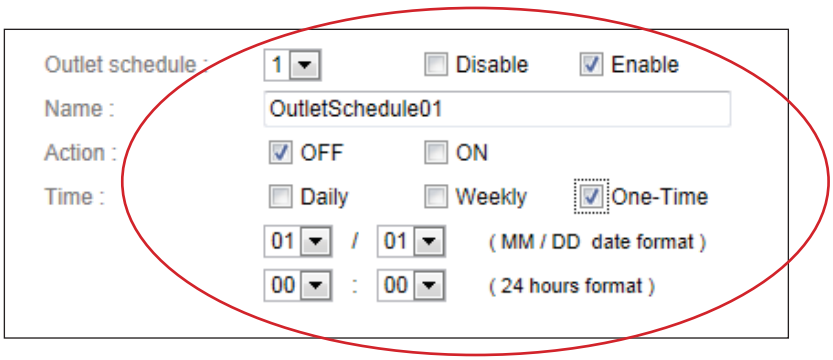
Step 5. Select the time for outlet schedule.



Daily ON / OFF Schedule



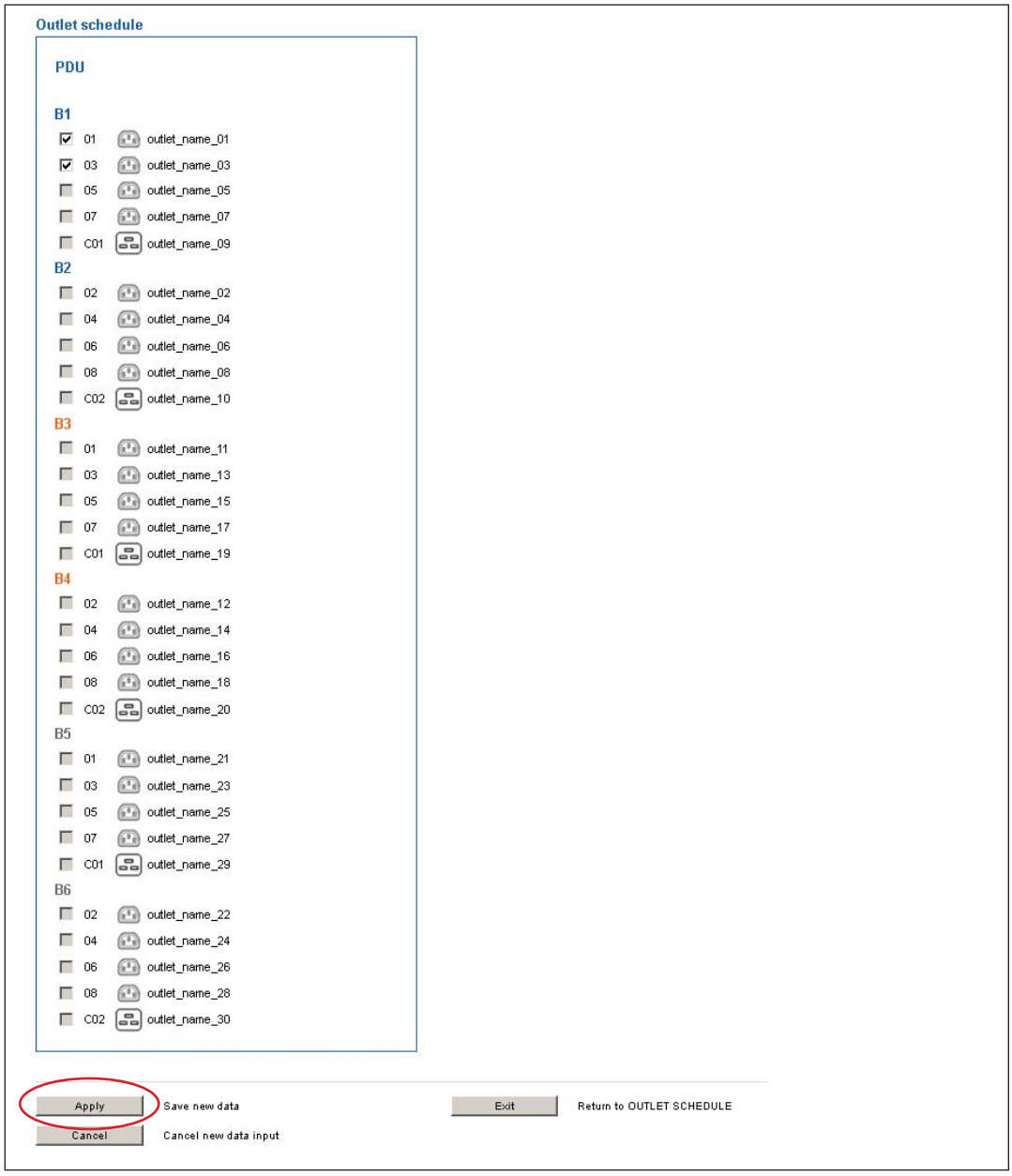
Weekly ON / OFF Schedule



One-time ON / OFF Schedule

< 4.7 > Outlet Schedule Setting

Step 6. Tick the outlets to switch ON / OFF



Step 7. Click " **Apply** " to save the settings

Step 8. Repeat step 2 to 7 for Outlet Schedule no.2 to 6 if necessary

If the outlet schedule task is " **One-Time** ", the setting will return to " **Disable** " once the task is completed.

To cancel the outlet schedule, tick " **Disable** " & Click " **Apply** " to finish the change.

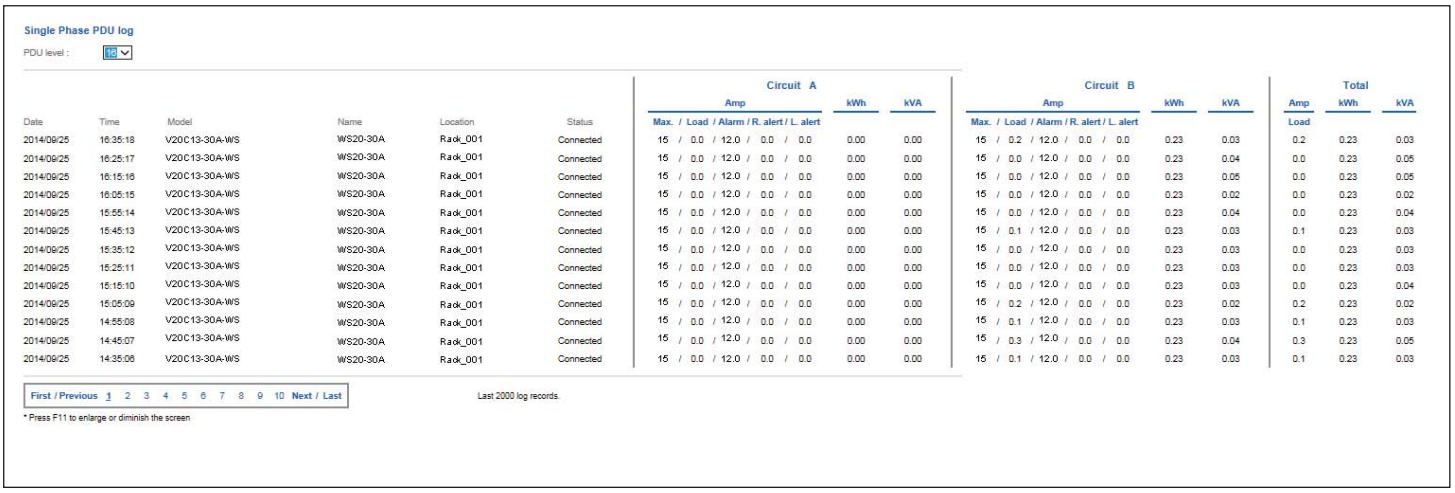
Part V. Log & Events

< 5.1 > Single Phase PDU / Outlet Log

< Single Phase PDU Log >

provides past 2000 log records of each Single Phase PDU.

The software will generate a PDU log record every 10 mins.



Single Phase PDU log

PDU level : 16

						Circuit A						Circuit B						Total		
						Amp				kWh	kVA	Amp				kWh	kVA	Amp	kWh	kVA
Date	Time	Model	Name	Location	Status	Max.	Load	Alarm	R. alert / L. alert			Max.	Load	Alarm	R. alert / L. alert			Load		
2014/09/25	16:35:18	V20C13-30A-WS	WS20-30A	Rack_001	Connected	16	0.0	12.0	0.0 / 0.0	0.00	0.00	16	0.2	12.0	0.0 / 0.0	0.23	0.03	0.2	0.23	0.03
2014/09/25	16:25:17	V20C13-30A-WS	WS20-30A	Rack_001	Connected	16	0.0	12.0	0.0 / 0.0	0.00	0.00	16	0.0	12.0	0.0 / 0.0	0.23	0.04	0.0	0.23	0.05
2014/09/25	16:15:16	V20C13-30A-WS	WS20-30A	Rack_001	Connected	16	0.0	12.0	0.0 / 0.0	0.00	0.00	16	0.0	12.0	0.0 / 0.0	0.23	0.05	0.0	0.23	0.05
2014/09/25	16:05:15	V20C13-30A-WS	WS20-30A	Rack_001	Connected	16	0.0	12.0	0.0 / 0.0	0.00	0.00	16	0.0	12.0	0.0 / 0.0	0.23	0.02	0.0	0.23	0.02
2014/09/25	15:55:14	V20C13-30A-WS	WS20-30A	Rack_001	Connected	16	0.0	12.0	0.0 / 0.0	0.00	0.00	16	0.0	12.0	0.0 / 0.0	0.23	0.04	0.0	0.23	0.04
2014/09/25	15:45:13	V20C13-30A-WS	WS20-30A	Rack_001	Connected	16	0.0	12.0	0.0 / 0.0	0.00	0.00	16	0.1	12.0	0.0 / 0.0	0.23	0.03	0.1	0.23	0.03
2014/09/25	15:35:12	V20C13-30A-WS	WS20-30A	Rack_001	Connected	16	0.0	12.0	0.0 / 0.0	0.00	0.00	16	0.0	12.0	0.0 / 0.0	0.23	0.03	0.0	0.23	0.03
2014/09/25	15:25:11	V20C13-30A-WS	WS20-30A	Rack_001	Connected	16	0.0	12.0	0.0 / 0.0	0.00	0.00	16	0.0	12.0	0.0 / 0.0	0.23	0.03	0.0	0.23	0.03
2014/09/25	15:15:10	V20C13-30A-WS	WS20-30A	Rack_001	Connected	16	0.0	12.0	0.0 / 0.0	0.00	0.00	16	0.0	12.0	0.0 / 0.0	0.23	0.03	0.0	0.23	0.04
2014/09/25	15:05:09	V20C13-30A-WS	WS20-30A	Rack_001	Connected	16	0.0	12.0	0.0 / 0.0	0.00	0.00	16	0.2	12.0	0.0 / 0.0	0.23	0.02	0.2	0.23	0.02
2014/09/25	14:55:08	V20C13-30A-WS	WS20-30A	Rack_001	Connected	16	0.0	12.0	0.0 / 0.0	0.00	0.00	16	0.1	12.0	0.0 / 0.0	0.23	0.03	0.1	0.23	0.03
2014/09/25	14:45:07	V20C13-30A-WS	WS20-30A	Rack_001	Connected	16	0.0	12.0	0.0 / 0.0	0.00	0.00	16	0.3	12.0	0.0 / 0.0	0.23	0.04	0.3	0.23	0.05
2014/09/25	14:35:06	V20C13-30A-WS	WS20-30A	Rack_001	Connected	16	0.0	12.0	0.0 / 0.0	0.00	0.00	16	0.1	12.0	0.0 / 0.0	0.23	0.03	0.1	0.23	0.03

First / Previous 1 2 3 4 5 6 7 8 9 10 Next / Last

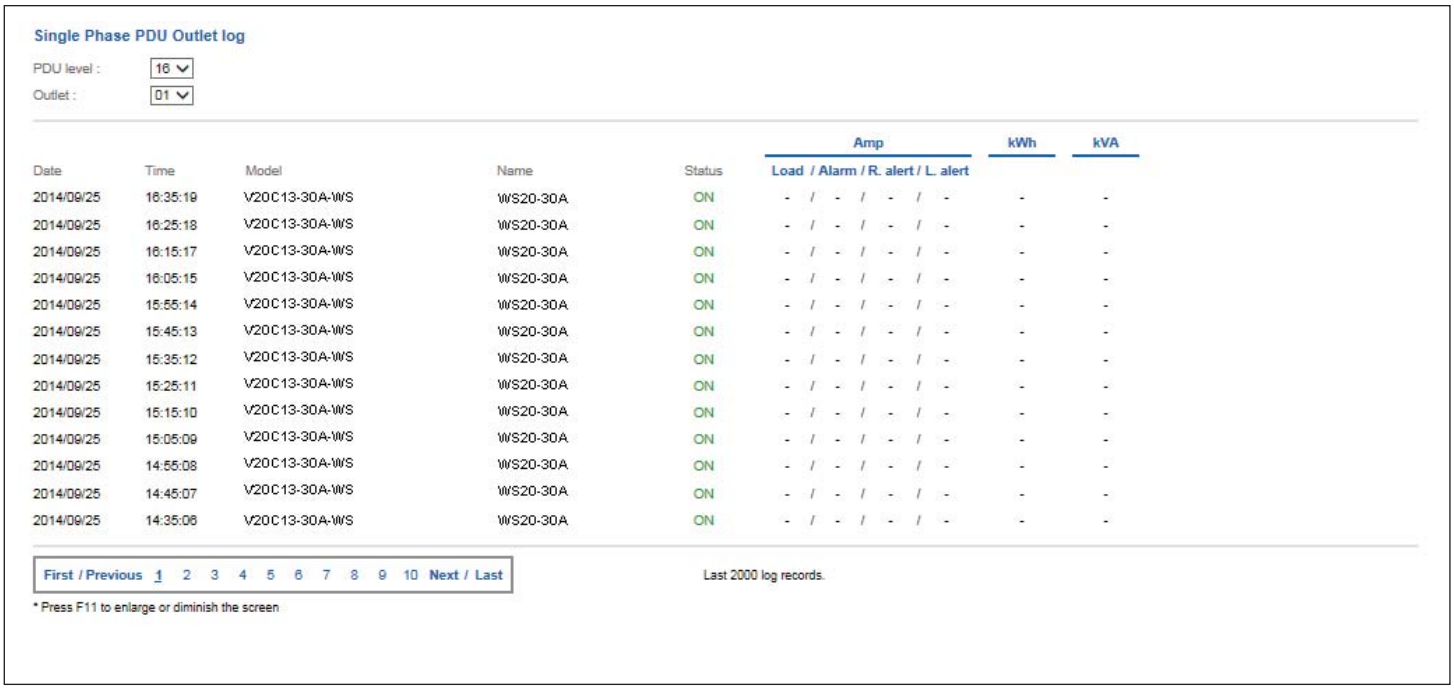
Last 2000 log records.

* Press F11 to enlarge or diminish the screen

< Single Phase PDU Outlet Log >

provides past 2000 log records of each Single Phase PDU's Outlet .

The software will generate an outlet log record every 10 mins.



Single Phase PDU Outlet log

PDU level : 16

Outlet : 01

					Amp	kWh	kVA
Date	Time	Model	Name	Status	Load / Alarm / R. alert / L. alert		
2014/09/25	16:35:19	V20C13-30A-WS	WS20-30A	ON	- / - / - / -	-	-
2014/09/25	16:25:18	V20C13-30A-WS	WS20-30A	ON	- / - / - / -	-	-
2014/09/25	16:15:17	V20C13-30A-WS	WS20-30A	ON	- / - / - / -	-	-
2014/09/25	16:05:15	V20C13-30A-WS	WS20-30A	ON	- / - / - / -	-	-
2014/09/25	15:55:14	V20C13-30A-WS	WS20-30A	ON	- / - / - / -	-	-
2014/09/25	15:45:13	V20C13-30A-WS	WS20-30A	ON	- / - / - / -	-	-
2014/09/25	15:35:12	V20C13-30A-WS	WS20-30A	ON	- / - / - / -	-	-
2014/09/25	15:25:11	V20C13-30A-WS	WS20-30A	ON	- / - / - / -	-	-
2014/09/25	15:15:10	V20C13-30A-WS	WS20-30A	ON	- / - / - / -	-	-
2014/09/25	15:05:09	V20C13-30A-WS	WS20-30A	ON	- / - / - / -	-	-
2014/09/25	14:55:08	V20C13-30A-WS	WS20-30A	ON	- / - / - / -	-	-
2014/09/25	14:45:07	V20C13-30A-WS	WS20-30A	ON	- / - / - / -	-	-
2014/09/25	14:35:06	V20C13-30A-WS	WS20-30A	ON	- / - / - / -	-	-

First / Previous 1 2 3 4 5 6 7 8 9 10 Next / Last

Last 2000 log records.

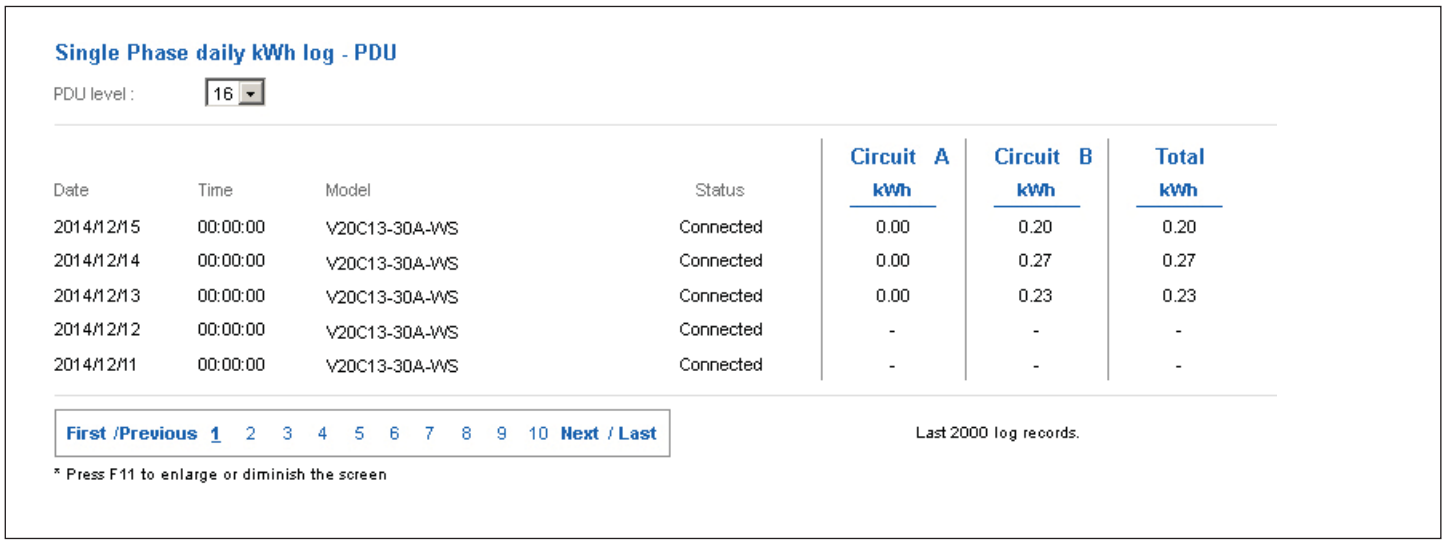
* Press F11 to enlarge or diminish the screen

< 5.1 > Single Phase PDU / Outlet Log

< Single Phase Daily kWh Log - PDU >

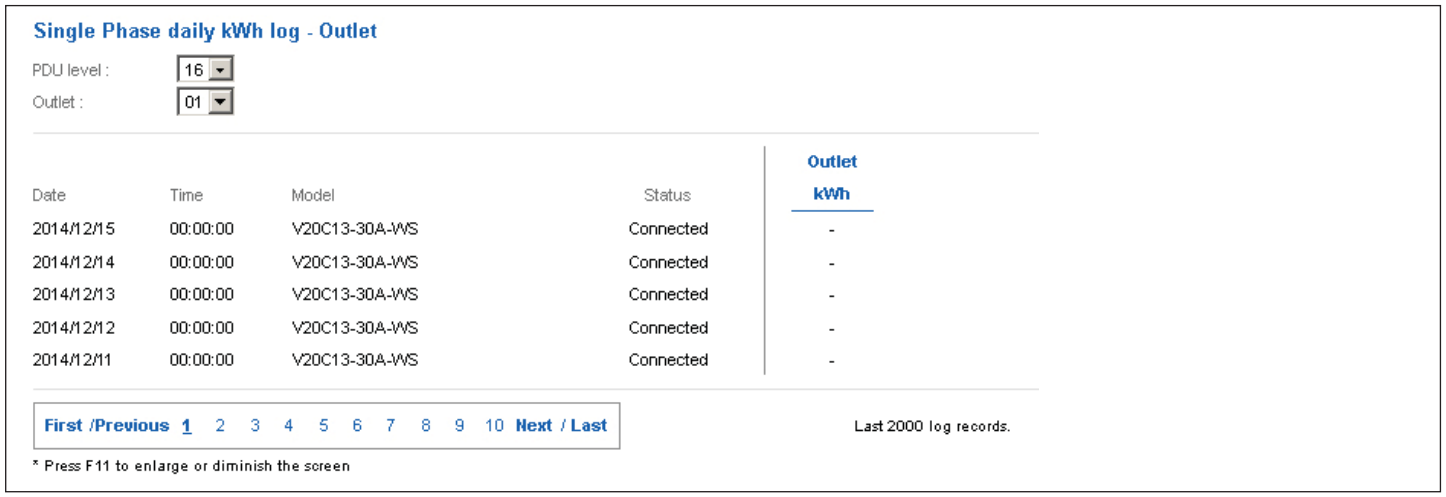
provides past 2000 daily energy consumption log records of each Single Phase PDU.
The record is logged at 00:00 everyday (+/- 5 mins.)

The daily kWh log will not be recorded at 00:00 if the PDU connected less than 24 hours


Single Phase daily kWh log - PDU
PDU level : 16
Date Time Model Status Circuit A kWh Circuit B kWh Total kWh
2014/12/15 00:00:00 V20C13-30A-WS Connected 0.00 0.20 0.20
2014/12/14 00:00:00 V20C13-30A-WS Connected 0.00 0.27 0.27
2014/12/13 00:00:00 V20C13-30A-WS Connected 0.00 0.23 0.23
2014/12/12 00:00:00 V20C13-30A-WS Connected - - -
2014/12/11 00:00:00 V20C13-30A-WS Connected - - -
First /Previous 1 2 3 4 5 6 7 8 9 10 Next / Last
Last 2000 log records.
* Press F11 to enlarge or diminish the screen

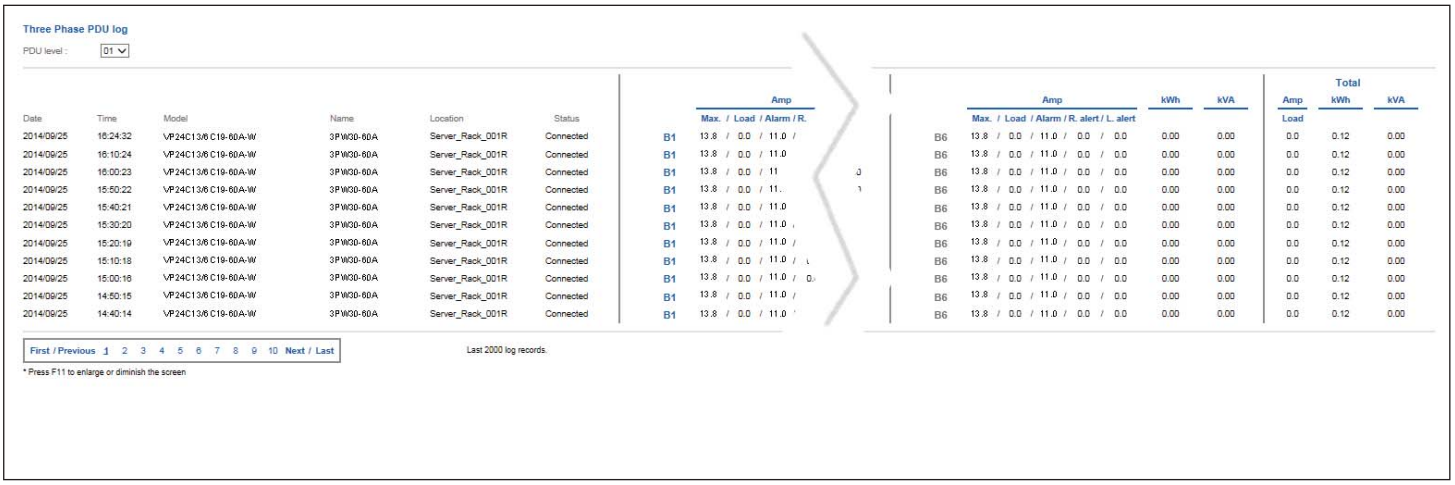
< Single Phase Daily kWh Log - Outlet >

provides past 2000 daily energy consumption log records of each Single Phase PDU's Outlet .
The record is logged at 00:00 everyday (+/- 5 mins.) .
(Single Phase Outlet Measurement PDU only)

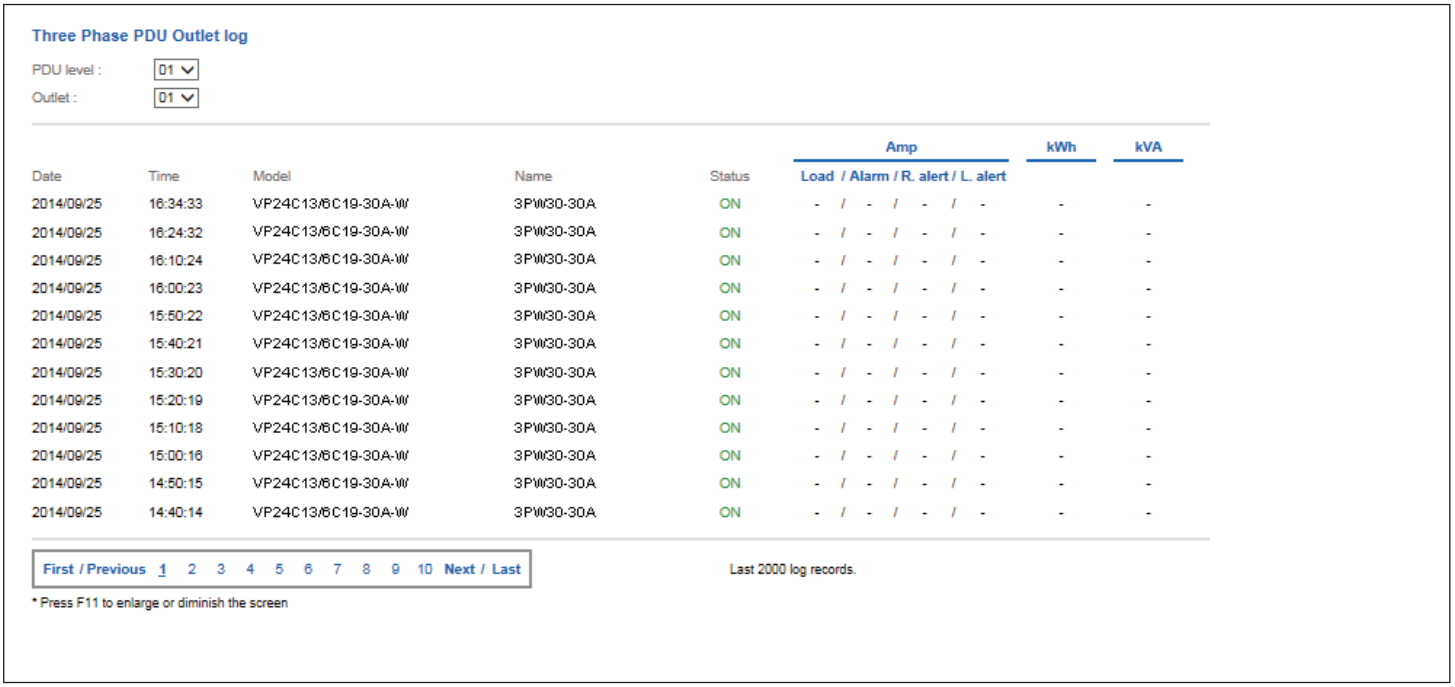

Single Phase daily kWh log - Outlet
PDU level : 16
Outlet : 01
Date Time Model Status Outlet kWh
2014/12/15 00:00:00 V20C13-30A-WS Connected -
2014/12/14 00:00:00 V20C13-30A-WS Connected -
2014/12/13 00:00:00 V20C13-30A-WS Connected -
2014/12/12 00:00:00 V20C13-30A-WS Connected -
2014/12/11 00:00:00 V20C13-30A-WS Connected -
First /Previous 1 2 3 4 5 6 7 8 9 10 Next / Last
Last 2000 log records.
* Press F11 to enlarge or diminish the screen

< 5.2 > Three Phase PDU / Outlet Log

< Three Phase PDU Log > provides past 2000 log records of each Three Phase Phase PDU. The software will generate a log every 10 mins.



< Three Phase PDU Outlet Log > provides past 2000 log records of each Three Phase Phase PDU's Outlet. The software will generate a log every 10 mins.

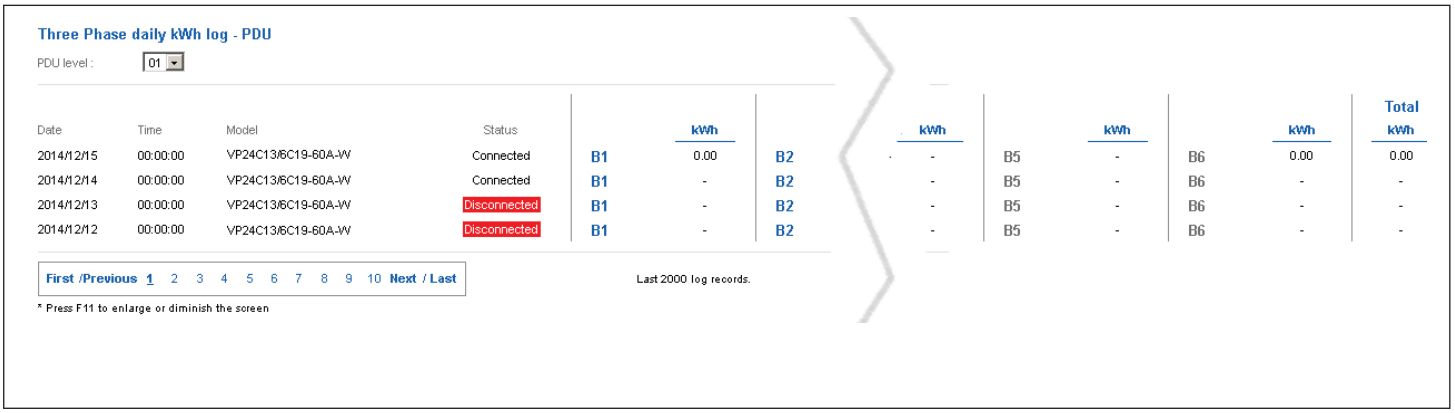


< 5.2 > Three Phase PDU / Outlet Log

< Three Phase Daily kWh Log - PDU >

provides past 2000 daily energy consumption log records of each Three Phase PDU. The record is logged at 00:00 everyday (+/- 5 mins.)

The daily kWh log will not be recorded at 00:00 if the PDU connected less than 24 hours

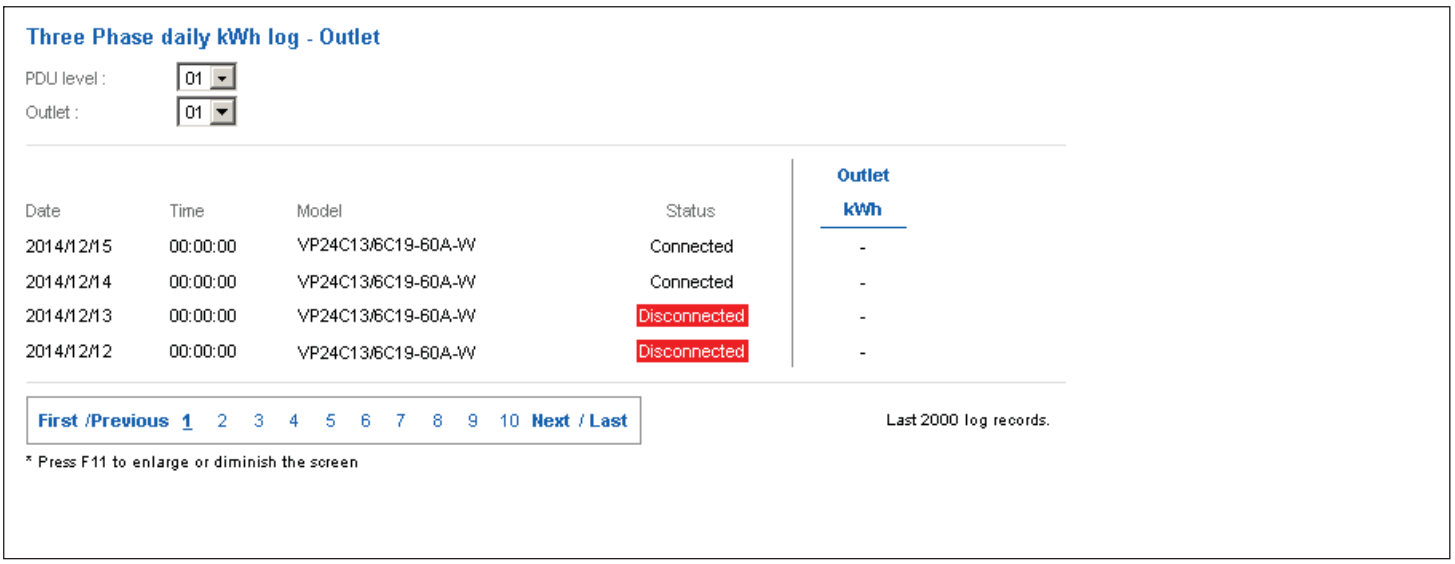

Three Phase daily kWh log - PDU
PDU level : 01
Date Time Model Status B1 kWh B2 kWh B5 kWh B6 kWh Total kWh
2014/12/15 00:00:00 VP24C13/6C19-60A-W Connected B1 0.00 B2 - B5 - B6 0.00 0.00
2014/12/14 00:00:00 VP24C13/6C19-60A-W Connected B1 - B2 - B5 - B6 - -
2014/12/13 00:00:00 VP24C13/6C19-60A-W Disconnected B1 - B2 - B5 - B6 - -
2014/12/12 00:00:00 VP24C13/6C19-60A-W Disconnected B1 - B2 - B5 - B6 - -
First /Previous 1 2 3 4 5 6 7 8 9 10 Next / Last
Last 2000 log records.
* Press F11 to enlarge or diminish the screen

< Three Phase Daily kWh Log - Outlet >

provides past 2000 daily energy consumption log records of each Three Phase PDU's Outlet .

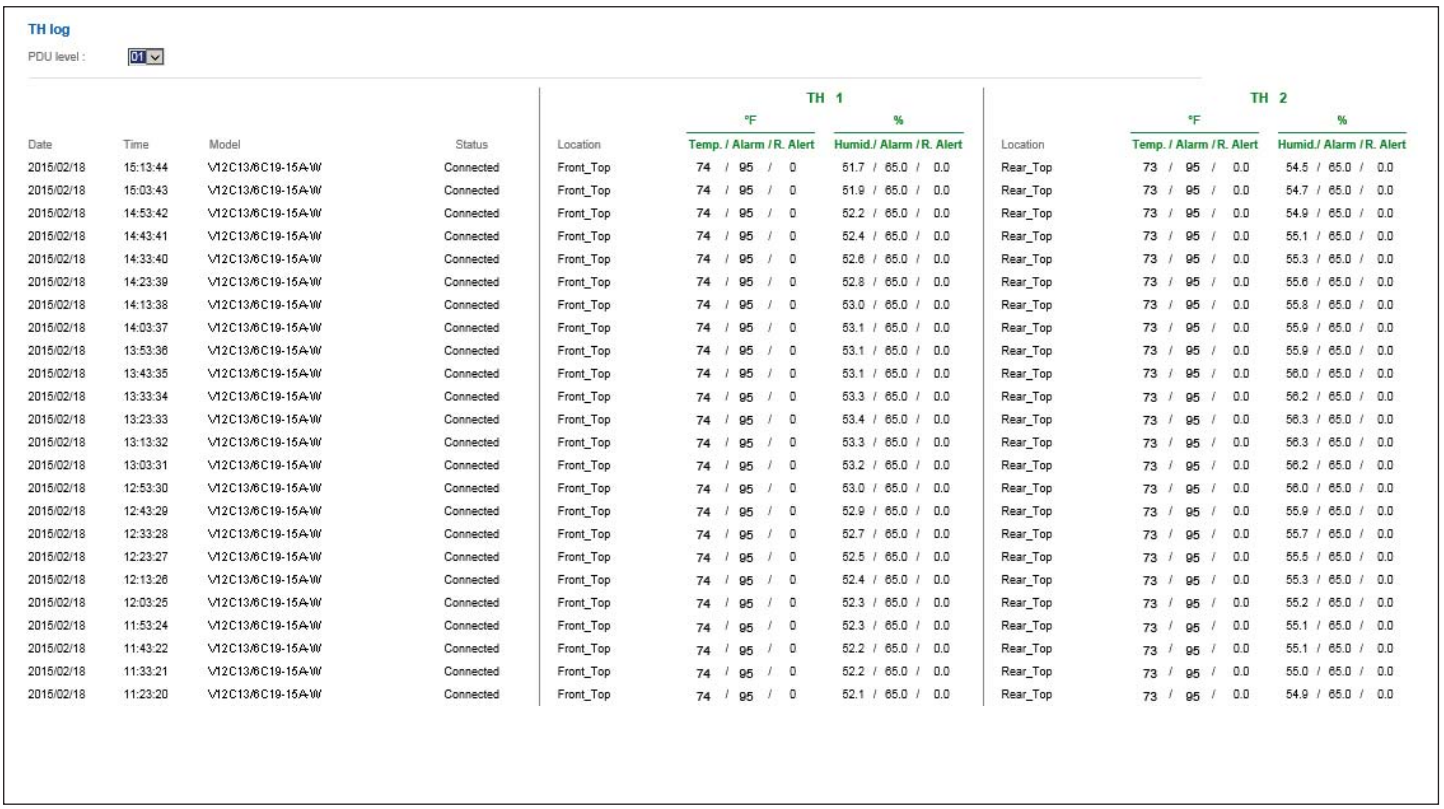
The record is logged at 00:00 everyday (+/- 5 mins.).

(3 Phase Outlet measurement PDU only)


Three Phase daily kWh log - Outlet
PDU level : 01
Outlet : 01
Date Time Model Status Outlet kWh
2014/12/15 00:00:00 VP24C13/6C19-60A-W Connected -
2014/12/14 00:00:00 VP24C13/6C19-60A-W Connected -
2014/12/13 00:00:00 VP24C13/6C19-60A-W Disconnected -
2014/12/12 00:00:00 VP24C13/6C19-60A-W Disconnected -
First /Previous 1 2 3 4 5 6 7 8 9 10 Next / Last
Last 2000 log records.
* Press F11 to enlarge or diminish the screen

< 5.3 > Sensor Log

< TH log > provides past 2000 TH log records of each PDU.
The software will generate a TH log record every 10 mins.



TH log

PDU level : 01

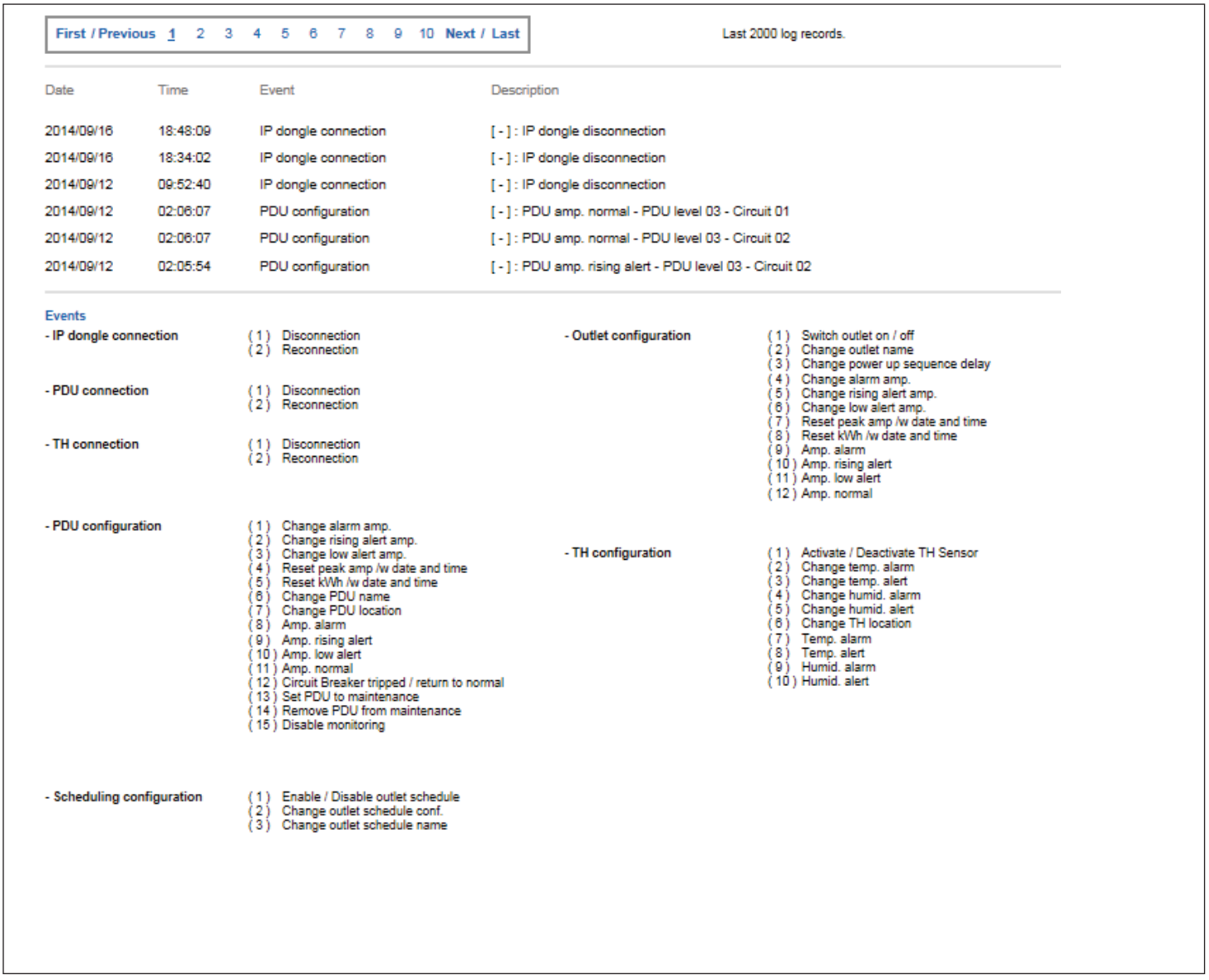
				TH 1		TH 2	
				°F	%	°F	%
Date	Time	Model	Status	Location / Temp. / Alarm / R. Alert	Humid./ Alarm / R. Alert	Location / Temp. / Alarm / R. Alert	Humid./ Alarm / R. Alert
2015/02/18	15:13:44	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	51.7 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	54.5 / 65.0 / 0.0
2015/02/18	15:03:43	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	51.9 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	54.7 / 65.0 / 0.0
2015/02/18	14:53:42	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	52.2 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	54.9 / 65.0 / 0.0
2015/02/18	14:43:41	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	52.4 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	55.1 / 65.0 / 0.0
2015/02/18	14:33:40	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	52.6 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	55.3 / 65.0 / 0.0
2015/02/18	14:23:39	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	52.8 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	55.6 / 65.0 / 0.0
2015/02/18	14:13:38	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	53.0 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	55.8 / 65.0 / 0.0
2015/02/18	14:03:37	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	53.1 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	55.9 / 65.0 / 0.0
2015/02/18	13:53:36	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	53.1 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	55.9 / 65.0 / 0.0
2015/02/18	13:43:35	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	53.1 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	56.0 / 65.0 / 0.0
2015/02/18	13:33:34	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	53.3 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	56.2 / 65.0 / 0.0
2015/02/18	13:23:33	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	53.4 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	56.3 / 65.0 / 0.0
2015/02/18	13:13:32	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	53.3 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	56.3 / 65.0 / 0.0
2015/02/18	13:03:31	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	53.2 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	56.2 / 65.0 / 0.0
2015/02/18	12:53:30	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	53.0 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	56.0 / 65.0 / 0.0
2015/02/18	12:43:29	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	52.9 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	55.9 / 65.0 / 0.0
2015/02/18	12:33:28	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	52.7 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	55.7 / 65.0 / 0.0
2015/02/18	12:23:27	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	52.5 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	55.5 / 65.0 / 0.0
2015/02/18	12:13:26	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	52.4 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	55.3 / 65.0 / 0.0
2015/02/18	12:03:25	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	52.3 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	55.2 / 65.0 / 0.0
2015/02/18	11:53:24	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	52.3 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	55.1 / 65.0 / 0.0
2015/02/18	11:43:22	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	52.2 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	55.1 / 65.0 / 0.0
2015/02/18	11:33:21	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	52.2 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	55.0 / 65.0 / 0.0
2015/02/18	11:23:20	\\12C13/8C19-15A-W	Connected	Front_Top 74 / 95 / 0	52.1 / 65.0 / 0.0	Rear_Top 73 / 95 / 0.0	54.9 / 65.0 / 0.0

< 5.4 > Sensor Log

< Event > based on IP Dongle group one by one to provide past 2000 event records of :

- IP Dongle connection
- PDU connection
- TH sensor connection

- PDU configuration
- Outlet configuration
- TH sensor configuration
- Scheduling configuration

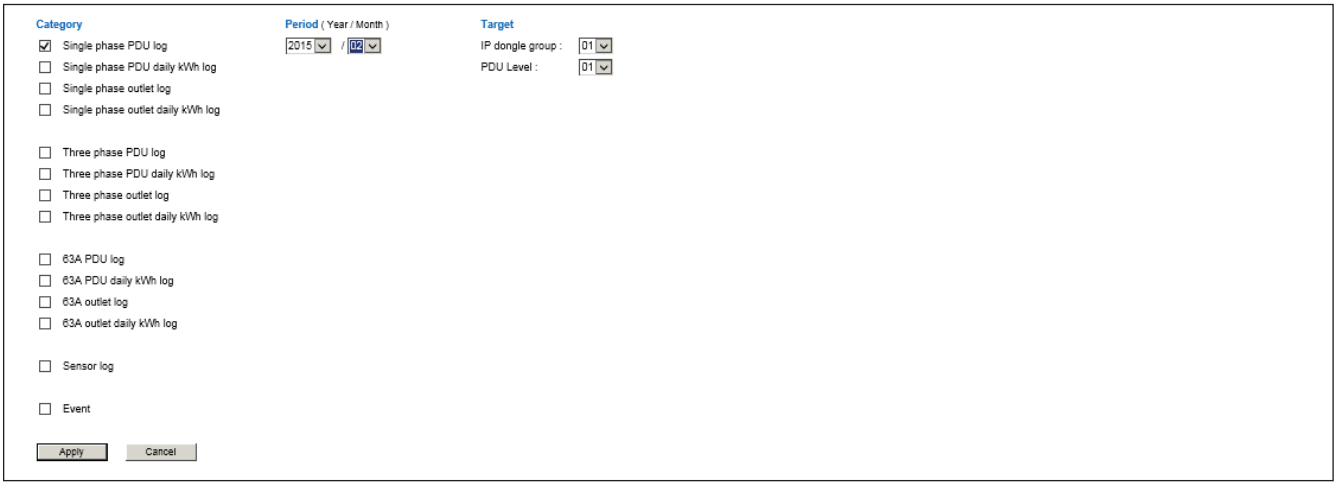

First / Previous 1 2 3 4 5 6 7 8 9 10 Next / Last
Last 2000 log records.
Date Time Event Description
2014/09/16 18:48:09 IP dongle connection [-] : IP dongle disconnection
2014/09/16 18:34:02 IP dongle connection [-] : IP dongle disconnection
2014/09/12 09:52:40 IP dongle connection [-] : IP dongle disconnection
2014/09/12 02:06:07 PDU configuration [-] : PDU amp. normal - PDU level 03 - Circuit 01
2014/09/12 02:06:07 PDU configuration [-] : PDU amp. normal - PDU level 03 - Circuit 02
2014/09/12 02:05:54 PDU configuration [-] : PDU amp. rising alert - PDU level 03 - Circuit 02
Events
- IP dongle connection
(1) Disconnection
(2) Reconnection
- PDU connection
(1) Disconnection
(2) Reconnection
- TH connection
(1) Disconnection
(2) Reconnection
- PDU configuration
(1) Change alarm amp.
(2) Change rising alert amp.
(3) Change low alert amp.
(4) Reset peak amp /w date and time
(5) Reset kWh /w date and time
(6) Change PDU name
(7) Change PDU location
(8) Amp. alarm
(9) Amp. rising alert
(10) Amp. low alert
(11) Amp. normal
(12) Circuit Breaker tripped / return to normal
(13) Set PDU to maintenance
(14) Remove PDU from maintenance
(15) Disable monitoring
- Scheduling configuration
(1) Enable / Disable outlet schedule
(2) Change outlet schedule conf.
(3) Change outlet schedule name
- Outlet configuration
(1) Switch outlet on / off
(2) Change outlet name
(3) Change power up sequence delay
(4) Change alarm amp.
(5) Change rising alert amp.
(6) Change low alert amp.
(7) Reset peak amp /w date and time
(8) Reset kWh /w date and time
(9) Amp. alarm
(10) Amp. rising alert
(11) Amp. low alert
(12) Amp. normal
- TH configuration
(1) Activate / Deactivate TH Sensor
(2) Change temp. alarm
(3) Change temp. alert
(4) Change humid. alarm
(5) Change humid. alert
(6) Change TH location
(7) Temp. alarm
(8) Temp. alert
(9) Humid. alarm
(10) Humid. alert

Part VI. Report

< Report > provides monthly report for PDU log , Outlet log , TH Sensor log , Daily kWh log & Event log which can be exported in CSV format.

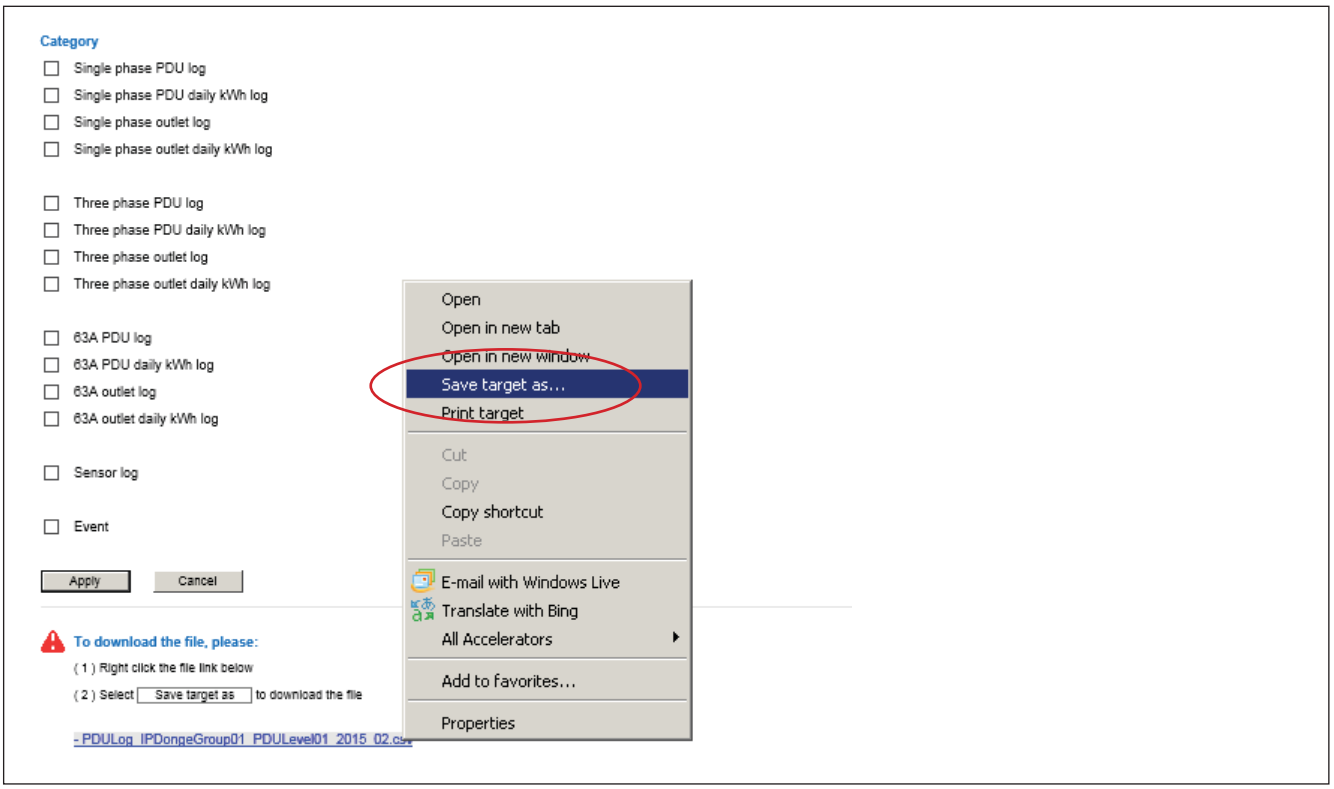
Please follow the steps below to export the log category you want :

Step 1. Select " **Category** " , " **Period** " & " **Target** "



Step 2. Click " **Apply** " & Click " **OK** " from the pop up window

Step 3. Right Click the file name below & Select " **Save target as** " to download the log file



Step 4. Click " **Close** " to complete or " **Open** " to view the content of log file

Complete

Part VII. SNMP

< 7.1 > SNMP Setup via IP Dongle

< SNMP Setup >

The IP Dongle can manage all PDUs in a single daisy-chain up to 16 PDUs via SNMP v2c (Simple Network Management Protocol).

Only IP Dongle model : IPD-04-S or IPD-H04-S can support SNMP

(I). Accessing MIB Files

Step 1. Click the following link to go to the mangement software download page :
http://www.austin-hughes.com/downloads/IPDL/software.html

Step 2. Select the appropriate MIB file of the PDU series

(II). Enabling SNMP Support

The following procedure summarizes how to enable the IP Dongle for SNMP support.

Step 1. Connect the IP Dongle to a computer. (Please refer to < 2.2 > IP Dongle Configuration)

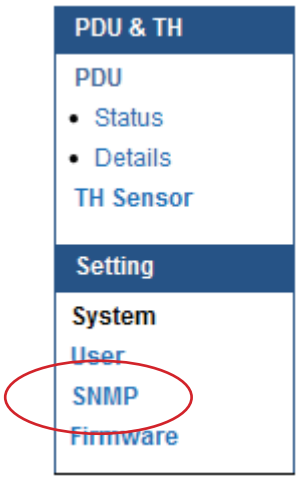
Step 2. Open the Internet Explorer (I.E.) version 8.0 or above

Step 3. Enter the configured IP Dongle address into the I.E. address bar.
Default IP address is " **192.168.0.1** "

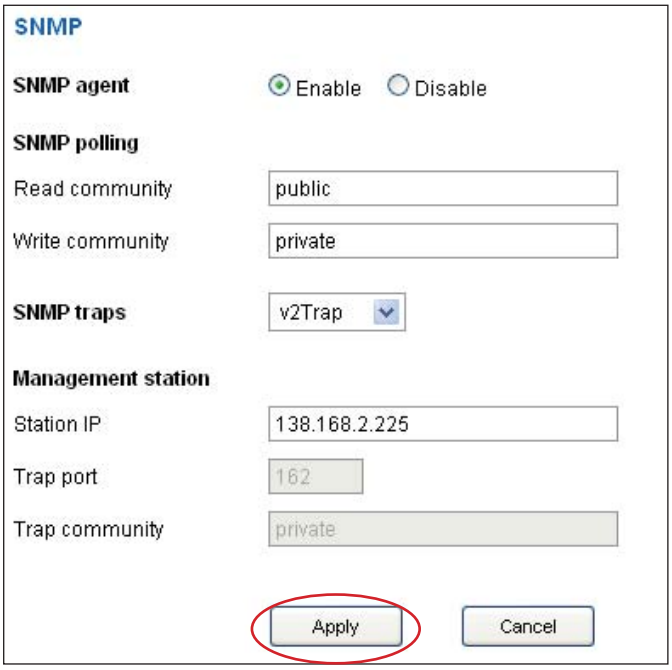
Step 4. Enter " **Login name** " & " **Password** ". Default login name & password are " **00000000** "

< 7.1 > SNMP Setup via IP Dongle

Step 5. Select the SNMP from the left navigation



Step 6. The SNMP Settings window appears as below:



Step 7. Click " **Enable** " in " **SNMP Agent** " to start the SNMP agent service

Step 8. Input " **Read Community** ". Default is " **public** "

Step 9. Input " **Write Community** ". Default is " **private** "

Step 10. Select " **disabled** " or " **V2Trap** " in " **SNMP Traps** "

If select " **V2Trap** " , please input IP address of the SNMP management station in " **Station IP:** "

Step 11. Click " **Apply** " to finish the SNMP settings

Complete

< 7.2 > IP Dongle Firmware Upgrade

< Firmware Upgrade >

For function enhancement of IP dongle WEB UI or fail to search the PDU, please take the following steps to upgrade the IP Dongle firmware :

Step 1. Click the following link to go to the mangement software download page :
http://www.austin-hughes.com/downloads/IPDL/software.html

Step 2. Select the appropriate IP Dongle firmware file of the PDU series

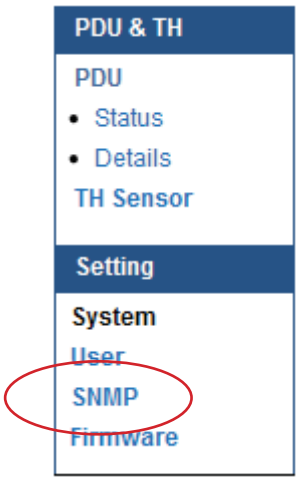
Step 3. Connect the IP Dongle to the computer.

Step 4. Open the Internet Explorer (I.E.) version 8.0 or above

Step 5. Enter the configured IP Dongle address into the I.E. address bar.
Default IP address is " **192.168.0.1** "

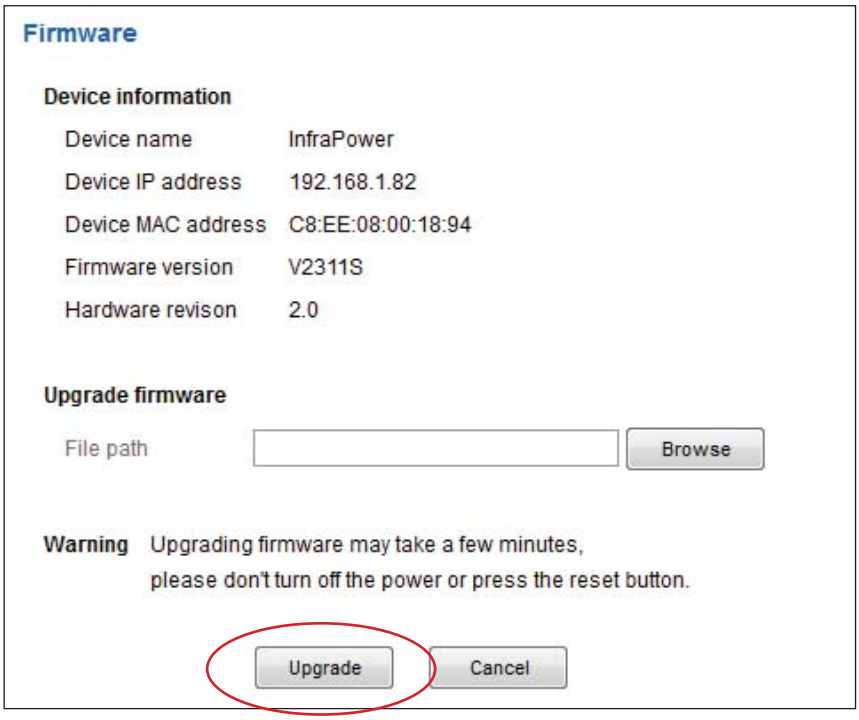
Step 6. Enter " **Login name** " & " **Password** ". Default login name & password are " **00000000** "

Step 7. Select the Firmware from the left navigation



< 7.2 > IP Dongle Firmware Upgrade

Step 8. The firmware upgrade window appears as below :



Step 9. Click " **Browse** " and select the firmware file (xxx.img) from the specific path in the pop up window and Click " **Open** "

Step 10. Click " **Upgrade** " to start the upgrade process. It takes a few minutes to complete.

Step 11. Once complete, UI will return to the login page.

Part VIII. FAQ

< 8.1 > Management Software

1. **Is IPM-04 management software free of charge ?**
   Yes.

2. **What is InfraPower Manager ?**
   The InfraPower Manager IPM-04 is a Windows based system to consolidate management of max. **800 PDUs** via **50 IP dongles**, using a simple web interface which monitors and controls Single & 3 Phase W series PDUs.
   - SNMP Capability via IP Dongle
   - Outlet switch On/Off and scheduling
   - Outlet level kWh & amp measurement
   - Temp-Humid monitoring
   - Graphic user interface
   - PDU & outlet reporting (kWh / Amp / Event / Temp & Humid)

3. **Which OS platform does IPM-04 support ?**
   - MS Windows XP Professional with SP3 (32bit only)
   - MS Windows 7 Professional with SP1
   - MS Windows 7 Ultimate with SP1
   - MS Windows Server 2003 R2 Standard Edition with SP2
   - MS Windows Server 2008 Standard Edition SP2
   - MS Windows Server 2008 R2 Standard Edition SP1

   Ensure the user logins as a member of "Administrators" Group before IPM-04 Installation and execution.

4. **What are the default ports used in the IPM-04 ?**
   - UTP port : 8890 for searching IP Dongle
   - TCP port : 4000 for IP Dongle communication
   - TCP port : 80 for HTTP
   - TCP port : 25 for email alarm service (can be changed by user)

5. **Why can't I access the login page ?**
   - If the web service is started & the port of web server is open in firewall setting

6. **Why can't I login remotely ?**
   - If the login name & password is correct

7. **Which database does the IPM-04 support ?**
   PostgreSQL

8. **What is the PostgreSQL default password for IPM-04 ?**
   1qaz2WSX

9. **How can I receive alarm email and get full log report ?**
   Ensure that IPM-04 is executed and the alarm server is configured properly and being enabled.

< 8.1 > Management Software

10. What is the default user name & login password of IPM-04 ?
Default user name “ admin ” / Default login password “ 00000000 ”

11. What is the command password of IPM-04 ?
- Each IP Dongle group has its command password (Default “ 00000000”) .
- For security, it will be requested for any PDU configuration and control.
- Only administrator can set command password.
- The passwords are disabled or enabled, same or different subject to the administrator’s management.

12. Is it possible to increase PDU from 800 & IP Dongle group from 50 ?
Yes, but custom management software & service charges required.

13. Is it possible to increase the concurrent user from 5 ?
Yes, but custom management software & service charges required.

14. Can I manage W series PDUs from different workstations ?
Yes, max. 5 concurrent login users from different workstations.

15. Why UI shows PDU / PDUs disconnection ?
- the PDU is power OFF or
- duplicate the PDU level no. or
- cable loose / defective

- the IP Dongle fails
  Refer to < 8.2 > IP Dongle

- the W Meter fails
  Refer to < 8.3 > W Meter

- the power module fails
  Refer to < 8.4 > Power Module

< 8.2 > IP Dongle

1. **What is the IP Dongle ?**
   The IP Dongle, with patented hot-plug & field replaceable design and SNMP function, provides a simple and economical way to consolidate management of max. 16 pcs of W series Single & 3 Phase PDUs via a single network IP address to save IP address cost.

2. **Does IP Dongle have a built-in UI ?**
   Yes, a built-in UI provides a general remote monitoring & control for cascaded PDUs.
   However, this built-in UI can only manage up to 16 PDUs in a daisy chain, no any reporting, event & log.
   If need a complete monitoring & control AND a log & reporting for some hundred PDUs, the free IPM-04 PDU management software is absolutely required.

3. **Can I use the built-in dongle UI and IPM-04 management software simultaneously?**
   No, only either one.

4. **Is the IP Dongle essential to IPM-04 management software ?**
   Yes, the software can't run without IP Dongle

5. **Is the IP Dongle essential to SNMP function ?**
   Yes, absolutely.

6. **What is default setting of IP Dongle ?**
   The default IP setting is as below : IP address : 192.168.0.1
   Subnet mask : 255.255.255.0
   Gateway : 192.168.0.254

7. **What is the IP setup utilities?**
   This is a windows application used to assign the IP address of IP Dongle.
   Please find the link below :
   http://www.austin-hughes.com/support/utilities/infrapower/IPdongleSetup.msi

8. **What are the default ports used in IP setup utilities ?**
   - UTP port : 8880, 8881, 8882, 8883, 8884, 8888, 8889, 8890 & 8891

9. **Does the IP Dongle support DHCP (Dynamic Host Configuration Protocol)?**
   No, the IP Dongle only works with static IP-address.

10. **Will the reset of IP Dongle affect the power to the outlets ?**
    No, the IP Dongle operates on a separate circuit, so the power to the outlets will remain unchanged.

< 8.2 > IP Dongle

11. What are the symptoms if the IP Dongle fails ?

- UI shows IP Dongle disconnection and users fail to access the whole cascaded PDUs
- Green LED off of IP Dongle

12. Why the IP Dongle fails to work ?

- the IP Dongle itself fails or
- the 1st level W Meter fails or
- the 1st level Power Module fails or
- cable loose or defective between IP Dongle and the network device

13. How can I replace a failed IP Dongle ?

Download the guide below to replace the IP Dongle :
http://www.austin-hughes.com/support/replacementguide/infrapower/RG-IP-W-IP-Dongle.pdf

14. Does the IP dongle have firmware built-in ?

Yes

15. How can I get the updated IP dongle firmware ?

Please find the link below :
http://www.austin-hughes.com/download/IPDL/IPDfirmware.html

16. Can I remotely update the IP dongle firmware ?

Yes.
Download the guide below to update the firmware accordingly :
http://www.austin-hughes.com/support/upgradeguide/infrapower/UG-IP-IP-Dongle.pdf

< 8.3 > W Meter

1. **What are features of the W Meter ?**
   - Support single & 3Phase PDU and they can be inter-cascaded in a single daisy chain
   - Support switched PDU and outlet amp + kWh measurement
   - Simply connect 1 x IP Dongle to access up to 16 PDUs to save IP network address
   - SNMP Capability via IP Dongle
   - Sensor port x 2
   - 2.8” color LCD featured w/ touchscreen
   - Built-in buzzer will sound when circuit or bank Amp over alarm setting
   - Field replaceable design allows meter replacement without PDU power interruption

2. **What is the default PDU level ?**
   Level 16

3. **What is the default outlet status of Switched PDU ?**
   ON

4. **If one of the cascaded PDU W Meter fails, will it affect the data transmission among PDUs in the same daisy chain ?**
   No , the meter design prevents this from happening.

5. **If one of the cascaded W series PDU (meter) loses power, will it affect the data transmission among PDUs in the same daisy chain ?**
   Yes, if the 1st level PDU loses power.
   No , if NOT the 1st level PDU loses power.

6. **What is the maximum cabling distance between two cascaded W series PDUs ?**
   Up to 20 meter (66 feet) via CAT. 5 / 6 cable.

7. **What are the symptoms if the W Meter fails ?**
   - if the W Meter PDU is one of that among the 2nd to last level, UI shows PDU disconnection and users fail to access this PDU
   - if the W Meter PDU is the 1st level, UI shows IP Dongle disconnection and users fail to access the whole cascaded PDUs
   - W Meter no display

8. **Why the W Meter fails to work ?**
   - the W Meter itself fails or
   - the Power Module fails and can’t supply power to W Meter so the W Meter fails to work or
   - the Power Module IC defective and causes W Meter has no data return or
   - the LAN cable loose or defective

9. **How can I replace a failed W Meter ?**
   Download the guide below to replace the W Meter :
   http://www.austin-hughes.com/support/replacementguide/infrapower/RG-IP-New-W-Meter.pdf

< 8.3 > W Meter

10. How accurate is the energy measurement on W Meter ?

The W Meter have an accuracy of +/- 1% of reading across the entire power and outlets energy measurement compliant with IEC 62053/ANSI C12.20 Standards

- Ampere - squelched to 0A under 0.3A
- Accuracy is not defined below 0.3A.

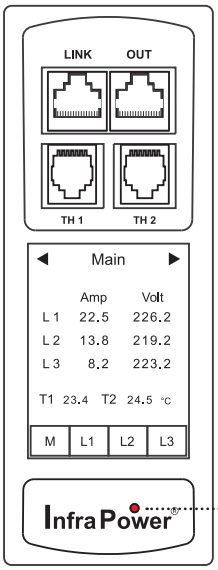
Functional Specifications - Metering	
Input Metering Range	0.3 to Rated Input Current
Outlet Metering Range	0.3 to 16.0A
Ampere Accuracy (A)	+/- 1%
Voltage Accuracy (V)	+/- 1%
Power Accuracy (kW)	+/- 1%
Energy Accuracy (kWh)	+/- (1%)*hours

11. Does the W meter have firmware built-in ?

Yes

12. What can I do if the W Meter turns white ?

- Use a pin to press the reset button
- If the symptom still persists, call your dealer for support



< 8.4 > Power Module

Infra Power
PDU Cascade functionality and Remote IP Access
• The PDU can be cascaded up to 16 levels
• For IP PDU access simply connect 1 x IP dongle
• 1 x IP Dongle allows access to 16 levels
LINK
OUT

1. **What is feature of the Power Module ?**
   - convert AC to DC for W Meter, IP Dongle & outlet control module
   - field replaceable design allows replacement without PDU power interruption

2. **How affect the W Meter if the Power Module fails ?**
   It will cause the meter fails to work as below :
   - if the W Meter PDU is one of level among the 2nd to the last, UI shows PDU disconnection and users fail to access this PDU
   - if the W Meter PDU is the 1st level, UI shows IP Dongle disconnection and users fail to access the whole cascaded PDUs
   - W Meter no display and / or no data return

3. **How affect the switched & measurement WS / WSi / Wi PDU if the Power Module fails ?**
   - lose outlet On/Off control and outlet amp & kWh measurement
   - but outlet can still supply power to device

4. **Why the Power Module fails to work ?**
   - the power module itself fails

5. **How can I replace a failed Power Module ?**
   Download the guide below to replace the Power Module :
   http://www.austin-hughes.com/support/replacementguide/infrapower/RG-IP-W-Power-Module.pdf

< 8.5 > Outlet Control Module

1. **How many types of Outlet Control Module ?**
   The outlet control module is a built-in PCB and NOT a hot-swapped & field replaceable design.
   - switched & measurement module for WSi switched & outlet level measurement PDU
   - outlet measurement module for Wi outlet level measurement PDU
   - switched module for WS switched PDU

2. **How affect the switched & measurement WS / WSi / Wi PDU if the Outlet Module fails ?**
   - lose outlet On/Off control and outlet level measurement
   - but outlet can still supply power to device

3. **Why the outlet control module fails to work ?**
   - the outlet control module itself fails

4. **How can I replace a failed Outlet Control Module ?**
   No, not like W Meter & Power Module, Outlet Control Module is NOT hot-swapped & field replaceable design. You have to replace the whole PDU.

5. **How can I replace a failed PDU ?**
   Download the guide below to replace the PDU :
   http://www.austin-hughes.com/support/replacementguide/infrapower/RG-IP-New-W-PDU.pdf

< 8.6 > TH Sensors & Others

TH sensors

1. **How accurate is the Temp. & Humid. sensor ?**
   ± 1°C (typical) & ± 4.5% RH (typical)

2. **How accurate is the Temp. sensor ?**
   ± 1.5°C (typical)

3. **What is the default TH setting ?**
   Default : Deactivate

4. **Is the TH sensor plug-n-play ?**
   Yes, but only for the local meter display.
   No, for management software UI. You have to activate the sensor in < TH Sensor >.
   Note : never activate if no sensor connection

Others

1. **Will the PDU settings remain unchanged after power OFF ?**
   Yes, the settings will remain unchanged such as PDU & Outlet Name, Location, Alarm amp., Low alert amp. .....

2. **Does the InfraPower PDU has the over ampere protection ?**
   Yes, the optional resettable fuse and circuit breaker available.

3. **What is the standard inlet cable length of InfraPower PDU ?**
   3 meter (9.9 feet)

4. **Where can I find the Catalogue / User manual / Model list / Wire diagram of InfraPower PDUs ?**
   Please visit the www.austin-hughes.com

5. **How can we get a further support?**
   Please send the email to support@infra-power.com or sales@infra-power.com

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